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HOW WE TRAVEL
A GEOGRAPHICAL READER

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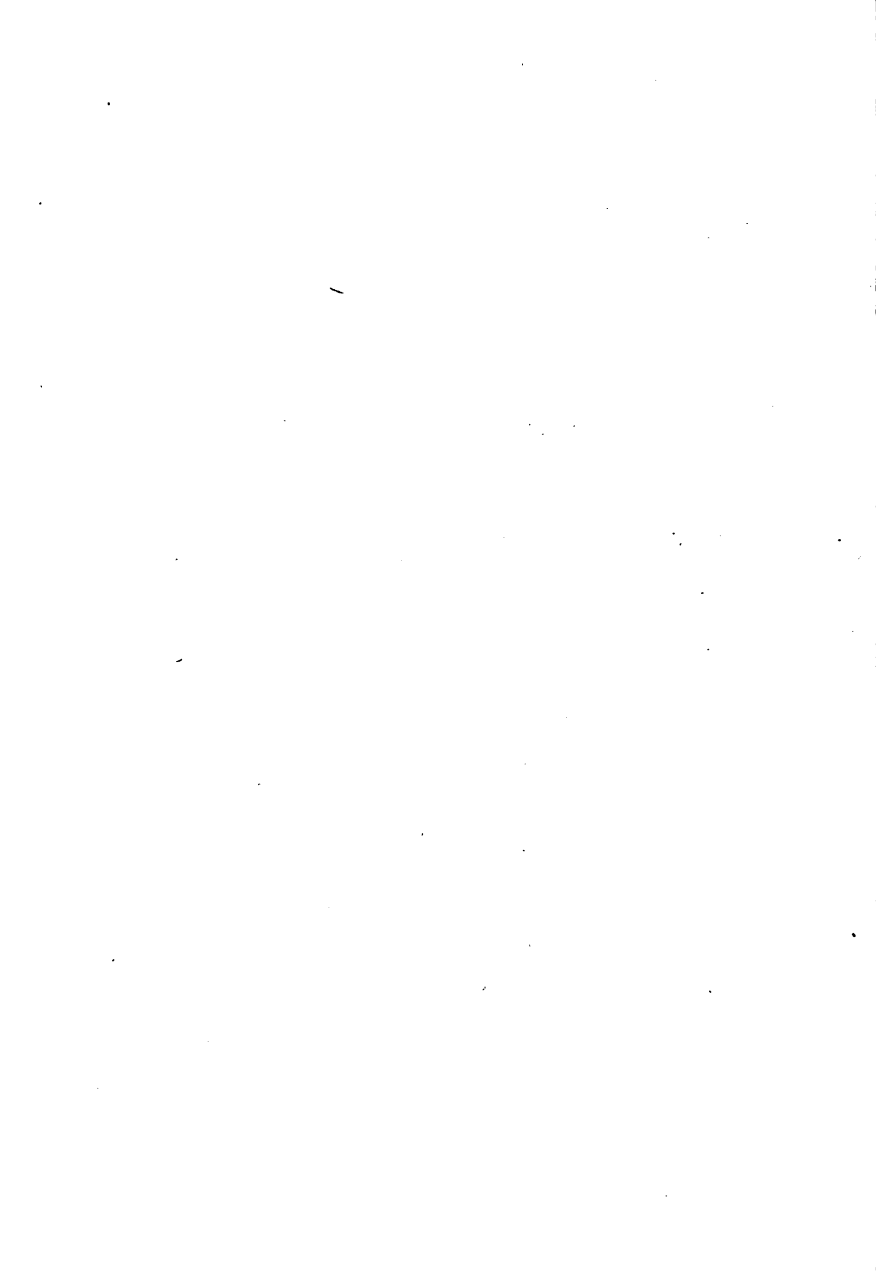


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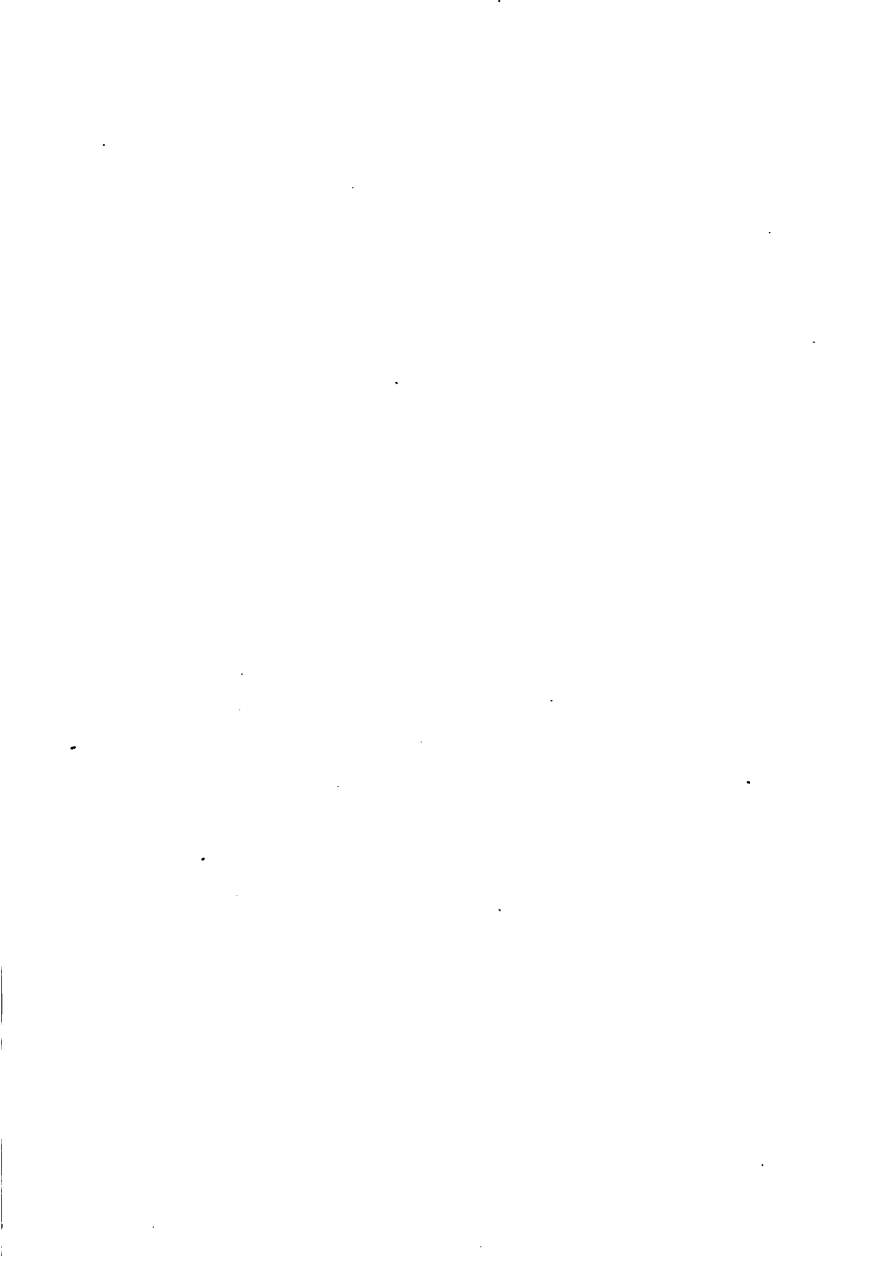
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Frontispiece

HOME AND WORLD SERIES

HOW WE TRAVEL

A GEOGRAPHICAL READER

BY

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AUTHOR OF "HOW WE ARE FED," "HOW WE ARE
CLOTHED," "HOW WE ARE SHELTERED," AND

• "FIELD AND LABORATORY EXERCISES
IN PHYSICAL GEOGRAPHY"

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PREFACE

THOSE experiences only are truly educative which prepare the individual to fill his place in life in the most efficient manner. That some of the work of the school does not come up to this standard must be admitted. The reason why experiences obtained outside of the schoolroom are generally so much more effective, lasting, and valuable than many of those obtained within is that in the former case they deal with *things* rather than with *words*. Moreover, these experiences are acquired by the child because he desires them. More closely to relate school and life experiences is one of the great aims of educational workers.

As a result of long study, we have come to the realization of the truth that the opportunities and conditions presented for growth through the agency of the school will be consciously and purposely laid hold of by pupils, and the results

thus obtained woven into the fabric of their character, only as these opportunities and conditions make direct appeal to them. While we can never, in a large sense, bring into the school-room the realities with which the great subject of geography deals, we can create in the child that which is at once the great incentive and the key to all study — interest.

That we should introduce the child to the great unseen world through his immediate world is an accepted truth. Our work, however, should be based more largely upon contact and experience than upon locality. In other words, there are certain points of contact, phases of human activity, with which the child is vitally and consciously concerned, and by means of which he is brought into constant relationship with those about him and also with the inhabitants of the most distant parts of the earth.

There are four great centers or units about which the introductory work in geography should be focused. These are the activities connected with securing food, clothing, shelter, and travel and communication. These are

fundamental everywhere. If some appreciation on the part of pupils as to why people live as they do, and of the relation of the individual to other individuals in the community and in the more distant world constitute a much to be desired result of teaching, then this approach to geography is of the highest importance.

The units above mentioned, and presented in the series of books of which this is the concluding number, constitute a rational introduction to the study of geography. The work is founded upon human activities, life as it actually exists, and it therefore commands the interest of the child. The parts are bound together by the chain of cause and consequence, and the work therefore leads to mental growth. The study naturally leads to and demands much knowledge of place relations, and this is developed through map study that is meaningful to the child because the purpose is evident. The physical environment of man and its influence upon his life is also taken up in an elementary way.

The author wishes to acknowledge his indebtedness to Miss Kathrine Scobey of the University

School for Girls, Chicago, who has rendered valuable service through reading the manuscript.

To the children of our land who inspire us to the best of which we are capable, and who are entitled to the best which our thought and labor can provide, this little book is sincerely dedicated.

JAMES FRANKLIN CHAMBERLAIN.

LOS ANGELES, CALIFORNIA.

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HOW WE TRAVEL

INTRODUCTION

WHEN a deer wants to get from a mountain side into the valley below where there is rich grass to eat and a sparkling stream from which to drink, it walks or goes with graceful bounds to the place. Fishes in rivers, lakes, and oceans swim rapidly from place to place, or lazily float about among the weeds and grasses, or play at hide and seek among the rocks. Each year before the snows of winter begin to fall the robin, meadow lark, swallow, and many other birds wing their way to the southland. In the spring they travel northward, and these journeys they repeat year after year. By walking, running, swimming, flying, or crawling, animals do all of their traveling. No matter how long their journeys may be, they must depend upon their own efforts.

Human beings travel very slowly on foot, yet for a long, long time this was man's only means of traveling. In time, however, the horse, ox, camel, and elephant were tamed and people learned to ride upon the backs of these animals.



Photo by C. C. Pierce & Co.

A Sailing Wagon used near Salton, California.

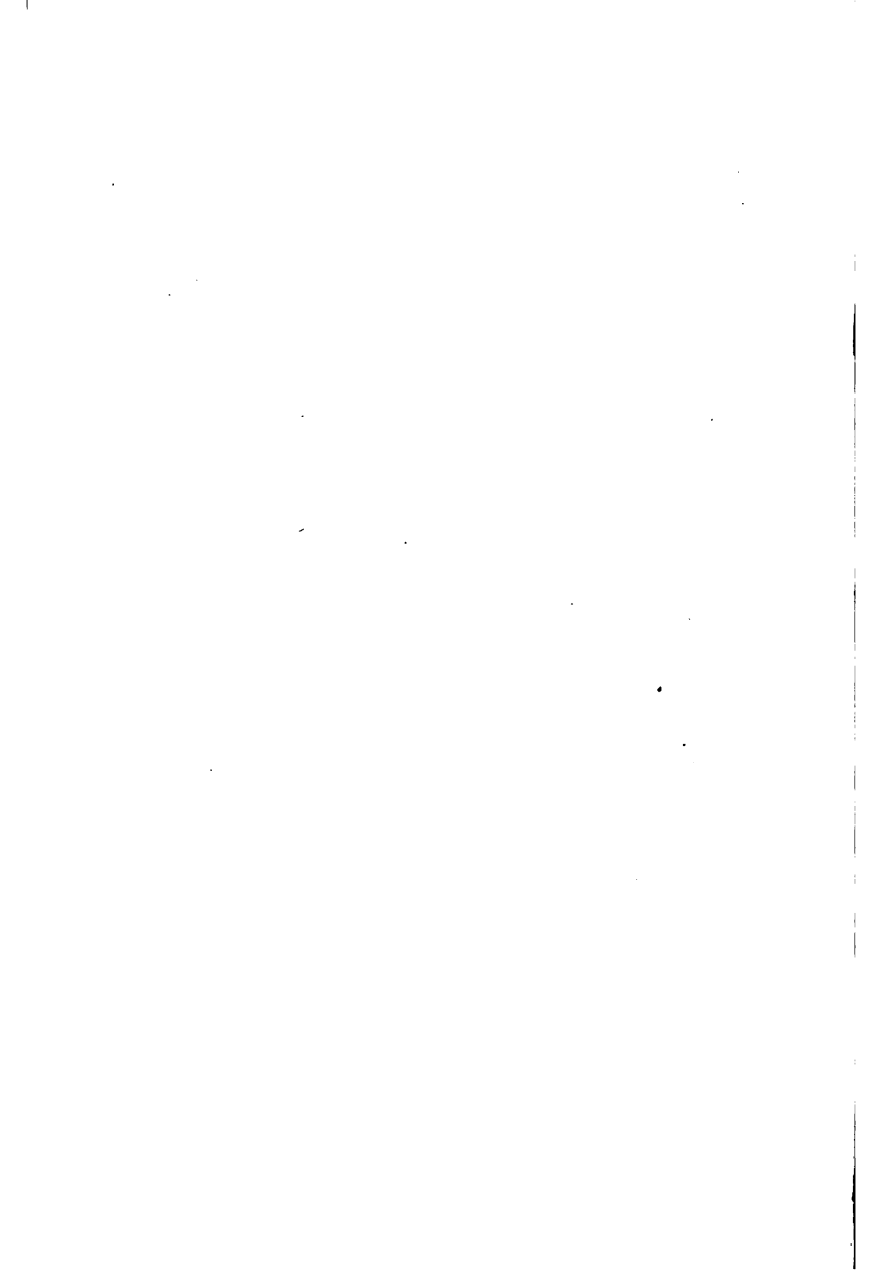
Later, men harnessed animals to vehicles of different kinds. In this way a larger number of persons could be carried at the same time.

There are now a great many different ways of traveling. Some of these are very curious and



Riding on Carabao in Philippine Islands.

Photo by C. C. Pierce & Co.



interesting. In how many different ways can you travel in your city or neighborhood?

In order to secure the things necessary to supply our daily needs, people must go from place to place for these, for different parts of the world produce different things. But it is not simply to



Photo by W. L. Richardson.

Carabao drawing Wagon, Philippine Islands.

secure and exchange the necessities of life that people travel. A few persons do this for the many who stay at home. In every large city there are men and women who ride several miles each day in order to reach their places of work. We do much traveling for the purpose of visiting relatives and friends. Many journey to see different lands and peoples. Travel is very

important, and new comforts and conveniences are constantly being added to our means of transportation.

You are familiar with carts, wagons, carriages, automobiles, bicycles, street cars, and steam cars,



and many of you have seen boats and ships of different kinds. In addition to ordinary street cars, some large cities have both elevated and underground lines of cars. This is a great advantage, because the streets are very badly crowded. The elevated trains thunder along on tracks which are about on a level with second or

third story windows, while the underground cars run below the level of the streets.

In the colder parts of our country sleighs are used a great deal during the winter months. The farmers haul produce on them, and they are used when people go on visits or pleasure rides. Tucked in under shaggy buffalo robes, I have had many a delightful ride in a great sleigh. How the cold wind reddened our cheeks! Sometimes we covered our heads, for the snow crystals as they struck our faces stung sharply. The snow squeaked as the iron shoes of the sleigh glided over it. We sang songs, the driver cracked his whip over the heads of the prancing horses, and the string of bells fastened to one of them added its music to the frosty air.

In some parts of the world dogs are used to haul both goods and people. In another place I shall tell you how the Eskimo drives his dog teams over the snow and ice of his arctic land. The many explorers who have long sought to reach the north pole have had to depend upon Eskimo dogs when traveling by land. The miners in Alaska make much use of dogs in

transporting their provisions, and they are also used in carrying the mail.

In France and Belgium dogs are harnessed to small wagons and used in hauling various kinds



A Belgian Milk-cart.

of produce. In the city of Brussels the milk is delivered by women who go from house to house with carts drawn by dogs. Sometimes one dog is used and sometimes two. Each dog has a

piece of carpet on which it may lie and also a drinking bowl.

In Ireland a peculiar vehicle called the *jaunting car* is much used. It has but two wheels



Irish Jaunting Car.

and is drawn by a single horse. The seats are placed over the wheels so that the passengers, two in number, ride sidewise and with their backs to one another. The baggage is placed

under the seats. There is a seat in front for the driver.

In the country districts of Mexico the patient ox is in common use. Great, clumsy carts with wheels of wood, as you see in the picture, are used in hauling hay, grain, and the various products of the farms.

If you will look at a map of South America, you will find Bolivia lying south of the equator. In the lofty mountains of that country an animal called the *llama* is used. The Indians of Bolivia had domesticated and used the llama long before the Spaniards first visited the country. All of the merchandise that goes in and out of the highest parts of Bolivia is carried on the backs of the llamas. They will carry a load of about one hundred pounds each, but if the burden is increased much above this amount, the animals lie down.

The people on the island of Madeira use a vehicle which they call *carro*. This word means car, although the vehicle is quite unlike a car. It is a sort of sledge drawn over the bare ground instead of over the snow. The runners are shod

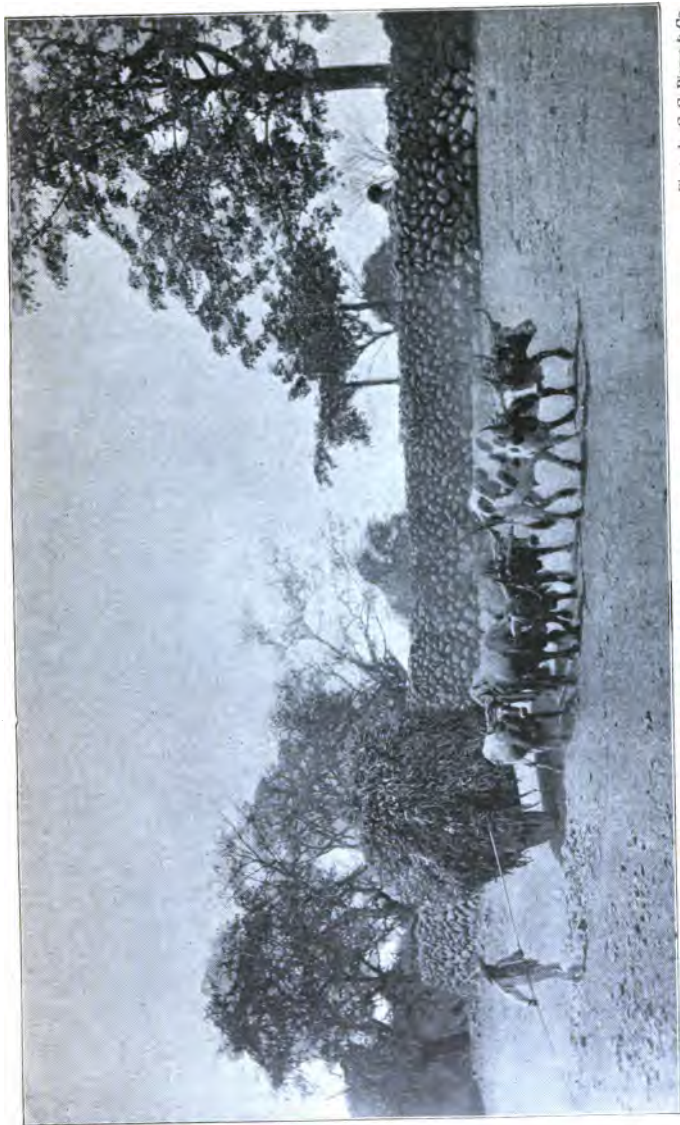


Photo by C. C. Pierce & Co.

Ox Team in Mexico.



with iron and on these is a platform resting on springs. Upon the platform are two cushioned seats facing one another, while a waterproof top



Photo by W. L. Richardson.

A Carro, Funchal, Madeira.

protects the passengers. This strange vehicle is slowly drawn by a pair of bullocks.

Many people in Hindustan travel by means of the *palanquin*. This is simply a wooden box about eight feet long, four feet wide, and four feet high. It is covered and has wooden shutters which the passenger can have closed or open as he will. These shutters serve to keep out

the bright sunshine, and during storms they keep out the rain. When opened they allow the breeze to enter.

Within the palanquin is a leather-covered mattress upon which the passenger sits or reclines. At one end of the vehicle there is a shelf and a drawer, and there are in addition some large pockets made of netting. In these the occupant of the palanquin may place articles that will be needed on his trip.

On the outside are iron rings, two at each end, and through these, poles are placed. Four men lift the palanquin and its passenger by means of the poles and carry him wherever he wishes to go. It is, of course, a slow method of traveling, but people in hot countries are not generally in a hurry.

In addition to the many ways of traveling on land there are various ways of traveling on the water. Rafts, canoes, sail boats, and steamships of many different kinds are used. Besides this it is possible for people to travel to some extent by means of balloons and air ships, although these are not yet commonly used.

To-day we do much business with others who may be at a distance. You see this illustrated every day in your home. Your mother wants some groceries, meat, or vegetables. Instead of going to the store or market, she may step to the telephone and order what she wants. She *communicates* with the shopkeeper and so does her business in that way. If your father is a business man, he saves a great deal of time each day through the use of the telephone.

Communicating with people at a distance has come to be very important in business and social affairs. The telephone, telegraph, cable, and mail are the chief means of sending messages. By means of a most wonderful invention, called wireless telegraphy, messages are now exchanged between ships at sea and points on shore. Probably this invention will be much more generally used in a few years than it is at present.

People have not always had these means of communication. There are men and women who can remember when there was no telegraph, telephone, or ocean cable. Many people do not

know how to communicate their thoughts to others by means of writing.

In ancient times messages were often sent by people who traveled on foot, just as your mother might ask you to step into another room or out into the yard and carry a message to your father. Another custom, not so old, was to send messages by a man on horseback. Do you remember the story of Paul Revere? What message did he carry?

In some parts of the world people build bonfires on hills as a means of signaling to others. In fact, signal fires were often used by the colonists in our own country to give warning of the approach of Indians. To the tops of tall poles, called *beacon poles*, iron kettles or baskets were fastened. In these, tar or some other fuel was placed. Wooden pins called *tree nails* were driven into holes in the poles. By means of these pins a man could climb the poles and set fire to the fuel. Beacon Hill in Boston received its name on account of such a beacon pole. It was erected in 1634.

A very interesting method of communicating

is by means of mirrors. Men stationed upon a mountain catch the sun's rays upon the surface of a mirror, and flash them to another station which is generally many miles away. The flashes and pauses can be read by those who understand the signals, much as a telegraph operator reads a dispatch. Beating upon great drums is another means of calling people together.

Both travel and communication are very important to all of us, whether we live in the country or in the city. I am going to tell you some of the many ways in which people in different parts of the world travel. We shall also learn something of the various means of sending messages from place to place.

TRAVEL IN COLONIAL DAYS

ON the thirtieth day of October in the year 1753 two men, mounted on horses, rode out of the little town of Williamsburg, Virginia. One of these men was young and of noble bearing. The other was older and was dressed as were the hunters and trappers of those days. They were soon in the woods, following a trail which was to lead them west and north, over the Appalachian Mountains to Fort le Bœuf, near where Erie, Pennsylvania, now stands.

You know that Virginia and the other colonies along the Atlantic coast were settled by the English. Later the French entered the Ohio Valley and built forts there. Because of this there were rumors of trouble between the two nations, and the governor of Virginia wished to send a message to the French, asking them to leave the country.

The journey to Fort le Bœuf was a difficult

and a dangerous one. Winter was coming on. There were streams to cross, mountains to climb, and forests to penetrate. Savage Indians who might at any moment attack the traveler lurked along the way. The governor wanted a messenger who was strong and brave. Besides this, he must be able to make a map of the country, sketch the forts which the French had built, and be able properly to present the message to the French commander.

After much searching for a suitable messenger, the letter was finally intrusted to the care of the younger of the two horsemen. He was but twenty-two years of age, but he was known as a brave and honest man, and he was a major in the Continental Army. This young man was George Washington, who afterwards became the first President of the United States.

Long before our travelers reached the end of their journey winter began. The snow covered the narrow trail and ice formed on the streams. The country was a wilderness with only here and there the log cabin of a settler. Because of this, Washington and his little party, which had been

increased by the addition of another white man and several Indians, had to sleep on the ground beside a camp fire.

Just at sundown, forty-two days after Washington left home, the weary travelers rode up to Fort le Bœuf. They had made a journey of about five hundred miles. The French commander, St. Pierre, received Major Washington kindly, and for three days treated him with great courtesy. At the end of that time he handed him a letter for Governor Dinwiddie of Virginia. As Washington and his companions mounted their horses, the French commander said, "My best wishes go with you, Major Washington; but I fear that your horses will not be able to carry you over this rough, snow-covered country."

"If they fail us, sir, we shall then get forward on foot," was Washington's brave reply.

"Adieu! adieu! and may God preserve you."

The return trip was even harder than the outward journey had been. The snow was deep and soon the horses were exhausted. Leaving these and the other members of his party to get

home by an easier route, Washington with a single companion set out on foot. After many hardships they reached Williamsburg on January 16, 1754.

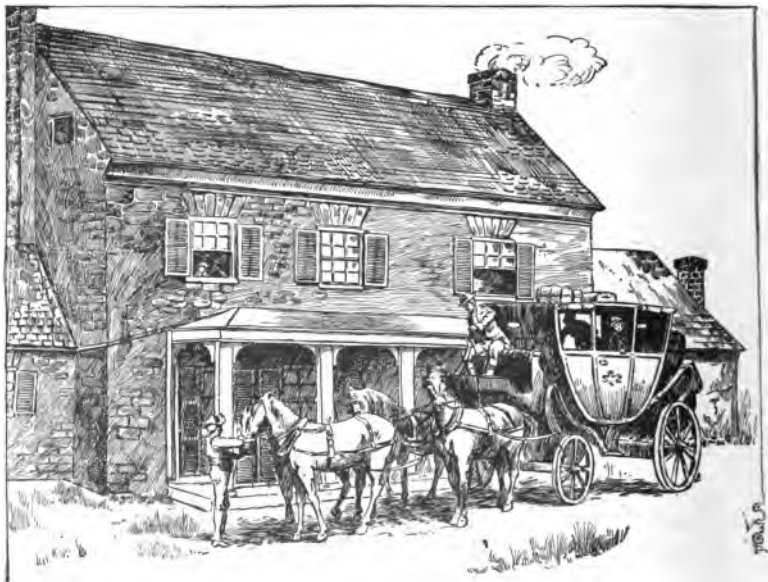
The letter which Major Washington delivered to Governor Dinwiddie said that St. Pierre could not leave Fort le Bœuf. He was acting under the orders of a superior officer in Canada. Then followed the French and Indian War, in which young Washington served his country so well, and after that came the war for independence.

Why did Washington make this long journey on foot and horseback? Because there was no other means of making it. There was no railroad over the mountains. There was not even a wagon road. People journeyed from place to place on foot, on horseback, or in canoes. Often man and wife traveled together on the same horse, the wife riding behind on a padded cushion called a *pillion*.

While it took Washington forty-two days to make his journey of five hundred miles, we can travel an equal distance now in less than one day. The fact that the message was sent as it

was, shows that there was no mail service between these points.

After a time trails were changed to roads, and coaches were run from town to town. In 1766



A Stage Coach before a Tavern.

the first coach ran regularly between New York and Philadelphia. In good weather it required two days to make the trip. Now it can be made in less than two hours.

The stage coaches were clumsy-looking vehicles, and they rocked and swayed as the horses plunged into great mud holes or dashed over the better parts of the roads. Often the passengers had to get out and help the driver lift the coach from some mire.

The hotels were called *taverns*. They did not have the accommodations that hotels have to-day. If they were crowded, travelers often had to sleep on the floor. Candles generally served for lights. Where there were no taverns travelers stopped at farmhouses. The people usually welcomed their guests and charged them nothing for entertainment.

George Washington did not live to see a railroad train, nor any means of travel more rapid or comfortable than those of which I have told you. Are you not glad that you are surrounded by so many conveniences?

TRAVEL IN NEW YORK CITY

WHEN the war of the Revolution broke out, the people asked the brave man who had carried the message to the French commander to take charge of the army. He served so well that when the time came to elect the first President of the United States the people once more turned to this great and good man.

Washington left his plantation on the Potomac River and traveled to New York City, which was then the capital of our country. He made the journey in a coach drawn by four horses. The roads were so muddy that in places the coach had to be lifted out of the mire.

New York was at that time a small place. The town was on the water front at the southern end of Manhattan Island. Much of the island was covered with forest; there were few streets, and some of these were poor and crooked. What is now Broadway was a part of the road followed

by the postman who carried the mail between New York and Albany. People traveled from



Omnibus formerly used in New York City.

one part of the town to another on foot, on horseback, or in vehicles drawn by horses.

As the city grew, people could no longer afford to travel in this way. It took too long to go from their homes to their places of business. The horse car was the first improvement. This, being run on rails, furnished a fairly comfortable and rapid means of travel.

Soon the surface cars could not accommodate the growing population. It was necessary to improve the car service and a new plan was

adopted. This was to construct railroads above the streets. Such roads are called *elevated* roads. They are built on strong iron and steel supports, and the cars rush along above the street on a level with second-story windows. At intervals



View of the Elevated Road.

Photo by R. L. Blount.

there are stairways leading from the streets to the stations above. New York is said to have been the first city in the world to build elevated railroads. She opened her first line in 1870.

We can now ride from one end of the city to another on the elevated roads. Trains run

almost constantly all day and all night. At first steam engines drew the trains, but now only electricity is employed.

In 1884 cable cars were introduced. These furnished another rapid means of getting about, and made it easier for people to live at some distance from their places of business.

Thousands of people who do business in New York City live in other places. If you look at a map you will see that Brooklyn is separated from New York by the East River. Over the great Brooklyn bridge, which was opened in 1883, thousands of persons pass daily. Since that time the Williamsburg bridge has been opened, and other bridges are being built. Ferries carry many passengers, and in addition there is a tunnel passing under the river, in which trains are run.

Many people who do business in New York live on the New Jersey side of the Hudson River, which is called the North River. The North River is not bridged, but there are many ferry-boats, and trains are run through tunnels under this river also. At Forty-second Street

is the Grand Central Station. Here one may take a train for many parts of the United States.

Notwithstanding all these means of transportation the streets of New York City are crowded. Morning and evening the crowds are especially large. Why? All day long on the down-town streets one sees drays coming and going. They are loaded with goods of all kinds which they are taking to or bringing from the wharves. There are express wagons, wagons loaded with ice, and others loaded with coal. There are cabs, omnibuses, auto trucks, automobiles, electric cars, and a throng of people hurrying in every direction. When a blockade occurs, it quickly spreads for blocks.

At last the people decided upon another means of travel. Great tunnels were dug under the streets. In these tunnels railroad tracks were laid, and on these tracks trains pass from one end of the city to another, carrying their loads of passengers. These underground lines of travel are called *subways*. The subways and the cars are well lighted, and as the trains run *under* the

streets and not upon them, there are no crossings to block the cars.

At intervals there are stations. These are on the surface of the streets. A sign tells the passenger whether trains taken at a given station will carry him up or down town. The passenger



Entrance to the New York Subway.

Copyright, 1905, by Detroit Publishing Company.

purchases his ticket in the station and descends a flight of steps to the platform where the train is boarded.

How strange it seems to be whirled along in a train running below the surface of the earth! Above, the street is filled with electric cars and

vehicles of many kinds as well as foot passengers. Up above the same street are the crowded elevated trains. All of these means of travel are needed to-day in the great city of New York, where sixty years ago the only public conveyances were omnibuses and carriages.

ROADS

IN order to travel readily from place to place roads of some kind are necessary. This is true whether we travel in a wagon, a carriage, an automobile, or a train. All civilized nations spend large sums of money in making and repairing roads, so that trade and travel may be benefited as much as possible.

In the days when people traveled on foot or on the backs of animals no roads were needed. Trails or paths led from house to house and from village to village. Many of the trees along the forest trails were *blazed*; that is, some of the bark on the side next the trail was cut off with an ax or a hatchet. These scars on the tree trunks could be easily seen when on account of snow or underbrush the trail might be partly hidden.

There are large areas in the western part of our country where there are no roads to-day.

Trails follow the streams into the mountains and wind back and forth along their slopes. Miners, hunters, fishermen, forest rangers, and others make much use of these lines of travel. Sometimes the travelers are on foot and sometimes in the saddle. Many pack animals may



Photo by C. C. Pierce & Co.

Burros Carrying Wood in Mexico.

be seen patiently bearing their loads of supplies to some mountain camp.

The camels that travel across portions of the great Sahara Desert do not follow roads but mere paths across the shifting sands. Both the camels and their drivers need sharp eyes, for the drifting grains of sand sometimes cover the



On the Desert.

Photo by E. A. Magie.

path. The springs are far apart, and getting lost is a very serious matter.

In a region in which there are rivers the

early settlers build their homes along these, and so travel by raft, canoe, and larger boats is very common. This delays road building until the land at some distance from the streams is settled.

When the people of the past learned how to make and use carts and wagons, roads became necessary. The Romans were probably the greatest road builders of ancient times. It is said that they built about fifty thousand miles of highways. So carefully did they construct them that, in some cases, they are still in use. Hundreds of years ago the Incas, the rulers of Peru, built splendid stone roads through their lofty mountain country.

In the early days of the history of our country roads were few and poor. The population was small and the people had little money. Because of this the roads were generally built by companies and so were not public highways. Each person who used these roads paid a fee called a *toll*. At the places where toll was collected there were gates placed across the roads. The gates were armed with sharpened

poles called pikes. As the pikes would turn people back or prevent them from riding through without paying, such roads were called *turnpikes*. Toll roads and toll bridges are still in use in some parts of our country.

For a long time after the founding of Jamestown the colonists did not go west of the Appalachian Mountains, but as the number of settlers increased, more land was needed. Brave and hardy pioneers cut paths through the forests and over the mountains and returned with news of the great fertile plains beyond. Encouraged by these reports, many people left their homes on the Atlantic Slope, and in wagons, generally drawn by oxen, started west. There were no roads at first except those made by cutting away the brush, and travel was very difficult. Finally in 1811 our government began the construction of a famous road called the "Old Cumberland Road." It extended from Cumberland, Maryland, nearly west to St. Louis, a distance of about seven hundred miles. The road was opened in 1818, and for many years it was an important line of travel.

The United States government does not now make roads except on public property like the Yellowstone National Park. Each citizen pays a yearly tax, generally known as a poll or road tax. The money thus collected is used in making and repairing roads and bridges. There are officers in each county and township whose duty it is to look after this work.

There are in the United States about three million miles of wagon roads. This distance is more than one hundred times the circumference of the earth. Most of these roads are of dirt. The land is plowed and the dirt drawn toward the center of the road by means of scrapers. This forms a ditch along either side into which the water runs after a rain. During the spring such roads, especially if made in clay soil, are almost impassable. Loaded wagons sink to their hubs in the mud, and often the loads have to be thrown off before the horses are able to drag the wagons out of the mire. Putting a coating of sand or gravel on such roads improves them very much, for this material dries quickly.

Sometimes in the early days *corduroy* roads

were built. Two rows of logs were placed on the ground like the rails of a railroad track. Across these, smaller logs or poles were laid and the spaces between filled with dirt. Such a road was much more solid than a dirt road, although it was rougher and more expensive. In some places roads of plank were made. These were smoother than the corduroy roads.

In Southern California, where crude oil is plentiful and cheap, country roads are often oiled. The oil forms a smooth, hard coating on top from which the water runs after a rain. During the summer, or dry season, such roads are very free from dust. Very sandy roads are often covered with straw or the threshed stalks of bean plants.

In towns and cities where there is a great deal of travel the roads are usually well made. As there are many persons to share the expense, the burden on each one is not great. City roads are called streets or avenues. As dwelling houses and places of business are close together, there must be many streets in order to accommodate people.

Sometimes streets are covered with asphalt. This makes them smooth and hard, just like the sidewalks. Other streets are paved with blocks of stone or wood. Still other streets are *macadamized*. A man named Macadam invented this system of road making. In the construction of such a road the road bed is carefully graded so that it slopes gently from the center to the sides. Then small pieces of rock which have been made by crushing large stones are scattered evenly over the street. A heavy steam roller then goes back and forth over the road, pressing the stones into the earth. This makes a firm, clean street.

City streets require constant attention, not only to keep them in repair, but to sprinkle and sweep them, and in cold parts of the country to keep them free from snow.

Not only are good roads of great importance to those who wish to haul loads over them, but they are also very important to those who travel in carriages, automobiles, on bicycles, horses, and even on foot.

The invention of the locomotive called for

special roads on which rails were laid. Such roads are called railroads. Railroads now extend into nearly all parts of the world. They cross prairies, deserts, and mountains and they are built through extensive forests. Railroads have done much to increase travel and to make it possible to obtain the products of other regions.

TRAVELING BY TRAIN

“TICKETS!” said the gate tender. Mr. Blake handed the man four long strips of paper. He examined them closely, looked sharply at Mr. Blake and the three people who followed him, and then punching the tickets he handed them back with the words, “Track number two.”

Our friends made their way through the gate and toward the train. Everything seemed to be in confusion. There were several tracks, and upon each one there was a train. Bells were ringing, engines were panting, and people were hurrying to and fro along the platforms of the great Dearborn Station, Chicago.

At last Mr. Blake stopped beside one of the long cars. “Los Angeles?” asked the porter. “Yes,” replied Mr. Blake. The porter took the hand baggage, and they all went into the car. “Here we are,” said Mr. Blake, “number six.”

Walter and Grace were very anxious for the

train to start, as they were going to California. They watched the passengers as they hurried aboard the train, and the trucks loaded with trunks and suit cases as the men drew them to the baggage car.

Presently there was a shout of "all aboard!" The conductor waved his hand to the engineer, and in another moment the train began to move. The great city with its lofty buildings and its rush and roar was soon left behind, and the fertile prairies of Illinois stretched before the travelers.

Late that afternoon the train crossed the Mississippi River at Fort Madison, Iowa. The children had often traced on maps the course of the "Father of Waters," but they had never before seen the stream. They were much interested and asked their parents many questions as the train slowly crossed the bridge.

"In the early days," said Mrs. Blake, "when people crossed the plains in covered wagons drawn by oxen or horses, there were no bridges over the river."

"How did people cross?" asked Walter.

“They were carried over on large flat-bottomed boats called *ferry boats*,” replied his mother.

“Did people travel across the continent in wagons?” inquired Grace, in surprise.

“Yes,” replied her mother; “for we have not had railroads very long. The journey was a very tedious one, you may be sure, as it took several weeks to go from Illinois to California, while now it takes but three days.”

“When was the first railroad built?” asked Walter.

“In England there were roads called railroads as early as 1682,” said his father. “They were constructed for the purpose of making it easier to haul coal from the mines. Wooden rails were placed on the ground, and the coal cars were drawn by horses.”

The children looked puzzled. “I don’t see why they used horses on railroads,” said Walter.

“Because locomotives had not then been invented,” returned Mr. Blake. “The invention of the locomotive was a wonderful thing. Different men worked on the problem, among them

James Watt, a Scotchman. It was not until 1804, however, that the locomotive became a success. In that year Richard Trevithick made and operated one in Wales. It was used to haul coal from a mine."

"I thought that George Stephenson invented the locomotive," said Mrs. Blake.

"He is often given the credit for having done so," replied her husband. "His first locomotive was operated on July 25, 1814. It also was employed in hauling coal, and it ran at the rate of four miles an hour. On September 27, 1825, Stephenson ran a train which carried both coal and passengers. People came from far and near to see the train, and they followed it as long as they could keep up. When under full headway the train ran at the rate of fifteen miles an hour. This was not a real passenger train, for the people rode in coal cars, but the experiment showed that engines could be used for drawing people as well as coal."

"When were real passenger trains used?" inquired Grace.

"The first passenger train was operated in

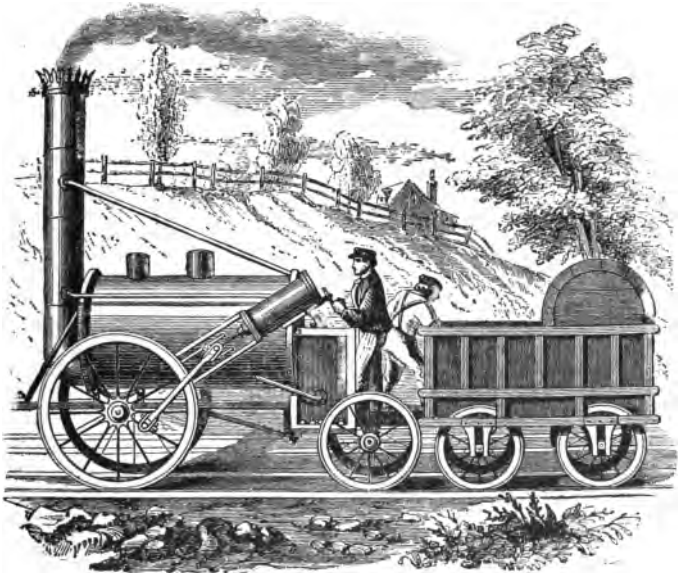
England in 1829," said Mr. Blake. "The road extended from Liverpool to Manchester. Many of the country people were not in favor of this method of traveling and called it 'traveling by teakettle.'" Why was it spoken of in this way? They were afraid that accidents would occur. In speaking of the railroads, a writer in an English magazine of that time said that he hoped that Parliament would limit the speed of trains to eight or nine miles an hour. He did not think that it would be safe to run them at a greater speed than that.

"On October 6, 1829, an engine called 'The Rocket,' which had been built by Stephenson, took a prize on the Liverpool and Manchester Railroad, although it averaged but fourteen miles an hour and weighed only four and one half tons. The Rocket may still be seen in the Patent Office in South Kensington, London."

"Tell us about the first *American* railroads," said Mrs. Blake.

"Well," replied her husband, "our first roads were like the first roads in England. They had wooden rails and the cars were drawn by horses.

Such a road, but three or four miles in length, was constructed in 1826. It was built to furnish an easy means of hauling granite from



“The Rocket” Locomotive

the quarry at Quincy, Massachusetts, for the Bunker Hill Monument.

“In 1828 a portion of the Baltimore and Ohio Railroad was built. Horses were used for one year, but after that locomotives drew the trains.

The first engine came from England, but in 1830 the 'Best Friend' was built in our country and used on this road.

"The 'De Witt Clinton' was one of the first locomotives made in the United States," continued Mr. Blake. "It was named for the man who made it. It drew a train of three cars, but so small were they that they carried but fifteen passengers each — nine riding inside and six on outside seats. This train ran on a part of what is now the New York Central and Hudson River Railroad. The date was 1831."

"I should like to have seen some of those old engines and cars," said Walter.

"They were very different from those of to-day, you may be sure," his father replied. "The engines had no cabs. Water, and wood which was used for fuel, were carried on a small flat car. The cars were nothing but stage coaches, and there was no means of keeping the smoke and bits of burned wood from entering, for the windows were simply openings. The trains had no brakes, and so of course could not be stopped quickly.

“For a long time there was no means of either lighting or heating the trains, but later lamps and stoves were used. Little by little trains have been improved. The one in which we are traveling is called a ‘vestibuled train.’ It is made up of a mail car, a baggage car, smoker, day coaches, sleepers, observation car, dining car, besides library, bath room, and barber shop.

“Sometimes during the early days of rail-roading,” continued Mr. Blake, “the locomotives were not used when it rained. In 1832 this statement appeared in a Philadelphia newspaper: ‘Notice — The locomotive engine (built by M. W. Baldwin of this city) will depart daily, when the weather is fine, with a train of passenger cars. On rainy days horses will be attached.’”

Mother and children laughed at this, and Grace asked her father how he would get to his business if engines were not used on rainy days. Mr. Blake reminded his daughter that there are many ways of traveling to-day which people knew nothing about fifty years ago.

"How long have we had railroads in Chicago?" asked Walter.

"Let me see," replied his father. "'The Pioneer' was the first locomotive brought to our city. That was in 1848, only fifty-nine years ago, and yet to-day Chicago is the greatest railroad center in the world. The Pioneer was run on a part of what is now the Chicago and Northwestern Railroad."

"I think that it is about bedtime," remarked Mrs. Blake. The porter was already making up the berths for the night. The children were very much interested in these, and if you have never ridden in a sleeping car, I am sure that they would interest *you*.

The seats face one another in groups of two. The cushions at the back of each seat are taken out and placed flat beside the two which have been used as seats. This forms a bed. Just above each group of seats there is a handle in the roof of the car. Turning this, the porter pulls down what proves to be another bed. It is fastened to the ceiling by means of small chains. On this bed are blankets, mattresses,

and pillows for the upper and lower beds, or *berths*, as they are called. In addition to the bedding the porter finds in the upper berth two thin boards and a pair of heavy curtains. The boards he places in an upright position between the backs of the seats and the roof of the car, thus forming partitions between the berths.

Walter and Grace watched the porter as he hurried to a little closet in one end of the car. From this he took clean sheets and pillow slips, and the beds were soon arranged. Then taking the curtains, he hung them before the berths. Walter noticed that there was a number attached to each curtain. Walking through the car, he found that there were twelve lower and twelve upper berths in it. Each berth will accommodate two persons.

The porter now brought a short stepladder, and Mr. Blake and Walter climbed into the upper berth. How strange it seemed! The car rocked and the engine shrieked, but Walter was soon in the land of dreams.

The next morning the family went into the dining car for breakfast. The car was ar-

ranged much as any first-class restaurant would be. There were small tables on each side of the aisle, and little mirrors in the sides of the car opposite each table.

Our friends examined the menu cards, and Mr. Blake wrote a list of the things desired on a piece of paper and handed it to a waiter.



A Modern Dining Car.

“Where is the food prepared?” asked Grace.

“There is a kitchen in one end of the car,” her mother replied, “and the cook is kept busy, you may be sure.”

After breakfast the family went back to the sleeper. The berths had disappeared and the car was once more a sitting room. Mr. Blake

pushed an electric button, and the porter appeared. "A table, please," said Mr. Blake. The table was brought and set up between the seats. It had small brass projections at one end which fitted into openings in the wall of the car. At the other end was a leg by which it was supported.

Mr. Blake was busy writing letters for some time. Soon after he had finished, the train came to a stop, and the whole family went out for a short walk. They walked forward to the mail car, and Mr. Blake dropped his letters through a small opening in the side of the car. "This is a regular post office," he explained. "Unlike a post office in a town or city, it keeps moving. Within the car there are many mail sacks. Some will go right through to California, and some will be dropped off along the way. Many others will be taken on, also. The letters which I have posted will soon be thrown off together with others, and they will be put on the first mail train going to Chicago." Just then the conductor's shout of "all aboard" was heard, and our friends went back into their car.

Later in the day Walter asked his father to tell him who invented sleeping cars. He pointed to the door of the car on which was the word *Pullman*. "You know," said Mr. Blake, "that the town of Pullman is south of Chicago. Mr. George M. Pullman, who established the town, was the inventor of the modern sleeper, although a more crude style of sleeping car was invented by a Mr. Woodruff in 1856. Just think how tiresome it would be to take a long journey and not be able to lie down. Fifty years ago travelers did not have the comforts which these cars afford. At first the berths were little more than shelves upon which people slept. They were stationary, and therefore the cars could be used as sleeping cars only. Many years of study were required to bring the cars to their present condition."

"Are there railroads in all parts of the world?" inquired Grace.

"They are found in most countries," answered her father, "although there is more travel by rail in America and Europe than in other continents. The character of the trains differs some-

what in the different countries. In European countries the passenger cars are divided into compartments. These correspond to first, second, and third class cars in our country. Each compartment seats but a few people, sometimes not more than six. Each compartment has a door which opens on the side of the car. Before the train starts the doors of the compartments are closed and the passengers are locked in."

"I shouldn't like that," said Walter. "What do the people do when meal time comes?"

"They may tell the brakeman, or the guard, as they call him, what they want. He telegraphs ahead, and at the proper place the meals are brought on trays to the cars and eaten while the train is going. In America, when there is no dining car attached to a train, travelers secure their meals at stations where stops are made for that purpose.

"Sleeping cars are not common in Europe, because people do not travel long distances as we do in America. In Russia, sleeping-car passengers carry their own bedding."

As the train rushed through state after state

the children saw many strange and interesting sights. At last, after having crossed prairies, mountains, and deserts, the train climbed over a pass, on each side of which there were snow-capped peaks, and then rushed down into a valley which seemed to belong to another world. Orange trees, bending under loads of golden fruit, were on every hand. Roses blossomed on cottage walls. Snow-white callas lifted their heads in long rows. Everywhere there were sunshine, blossom, and fragrance.

The long journey was soon at an end. Our friends had traveled two thousand miles on a railroad train, and had been almost as comfortable all of the time as they would have been in their own home.

A JOURNEY IN A JINRIKISHA

“At last everything is ready for our long journey,” said Mr. Sheldon as he finished strapping a trunk and turned the key in the lock.

“Yes,” replied his wife, looking about the room nearly filled with trunks and suit cases, “I believe that we are ready.”

“How many days will it take to reach Japan?” inquired Philip, who was anxious for the journey to begin, for he was eager to see the “Land of Chrysanthemums.”

“About sixteen days,” returned his father.

“Sixteen days on the water?” asked Fannie, opening wide her blue eyes in surprise. “That is more than three times as long as it took us to go to New York on the train.”

“Although the voyage is a long one, you will enjoy it, I think,” said her mother. “There will be the great ocean with its changing colors, and the foaming track which the ship leaves behind

it. By moonlight this will appear like a silver pathway. Occasionally we may see a whale lifting its dark body partly above the waves and spouting two streams of water from its head before disappearing beneath the surface. Then we may pass a ship, or even more than one, and that is quite an event at sea. Besides, you will become acquainted with other children, and you can play games, and take long walks on the vessel."

"You can't walk very far on a ship, can you?" inquired Philip.

"The *Manchuria*, the ship on which we are to make the voyage, is nearly a block in length," replied his mother. "You can walk around the deck as many times as you please."

The next morning the family crossed the bay in a ferryboat from their home in Oakland, and boarded the *Manchuria* in San Francisco. Passengers were bidding good-by to their friends, and freight and baggage were being loaded. Soon the great ropes which held the steamer to the dock were cast off, and the vessel put out to sea. Gradually the city seemed to sink into the

hills upon which it is built, until only the tops of the highest buildings could be seen. A little later there was nothing in sight but the restless water.

At last the long journey came to an end, as all journeys do, and the passengers crowded eagerly forward, for they were anxious to view Yokohama, the city at which they were to land. As the *Manchuria* drew up beside the wharf there were shouts from the sailors, shouts from the men on shore, and the throwing of ropes with loops at the ends over the tops of great posts. Now the passengers, taking their hand baggage, walked down the gang plank to the wharf.

As they left the wharf there was a chorus of strange voices from a company of Japanese men, who were making many gestures. "Rik sha! Rik sha!" the men were crying, as they beckoned to the travelers.

"We will take a carriage to the hotel," said Mr. Sheldon, with a smile. He set down his suit case and walked to a sturdy-looking young fellow.

"A carriage?" said Philip, in surprise; "I don't see any carriages."

"Those are Japanese carriages," replied his mother, pointing to a row of two-wheeled carts. "They are called *jinrikishas*, which means 'man carriage.' They take the place of the cabs and public carriages in our country. People use them in making business trips and social calls."



Photo by C. H. Hamilton.

A Jinrikisha.

"Oh, yes," said Philip, "I remember having read about the jinrikishas, but when papa spoke about a carriage, I didn't suppose that he meant one of those carts."

While Mr. Sheldon was making a bargain with the jinrikisha man, the other members of the family observed the vehicles closely. They were carts having two wheels, with shafts attached. Over

the wheels were guards similar to those used on carriages in the United States. These guards were to keep the mud from flying into the carts. Some of the jinrikishas were made to carry but one passenger, while others were large enough to carry two. While some of the carts were open, others had tops of oiled paper. These could be raised and lowered. They served the double purpose of keeping the passenger dry during rains and of sheltering him from the sunshine.

“Look at that jinrikisha,” said Fannie, pointing to one which they had not before noticed. It was elaborately decorated with beautiful chrysanthemums on the sides and back.

“And at that one just beyond,” cried Philip, “with the dragons on it!”

Mr. Sheldon now stepped up and said that they were ready to start. He helped his wife and Fannie into one jinrikisha, while Philip climbed into the next one and his father took his place beside him. The jinrikisha men, who are called *kikis* (kī'kīs), stepped between the

shafts, and taking one in each hand they started off at a brisk trot.

The children were quite excited. Imagine yourself going through a city in a carriage



Photo by C. H. Hamilton.

Travel in a Japanese City.

Compare this with a street scene in our country.

drawn by a man. Several jinrikishas were passed before the hotel was reached, but only one carriage such as we use.

The man who was drawing the vehicle in which Fannie and her mother were riding wore

a large, white, oval-shaped hat, a red jacket, on the back of which were curious-looking letters, and short black trousers. He was without stockings. What do you suppose he wore on his feet? You cannot guess, I am sure. Sandals made of rice straw!

“Oh, dear!” whispered Fannie, when she noticed this. “Don’t you suppose the pebbles hurt the man’s feet dreadfully?”

“No,” replied her mother, “for he has become accustomed to stepping on them with shoes of that sort; besides, you know, American boys run barefooted over stones and stubble.”

“Surely the sandals do not last long,” said Fannie.

“Only a short time,” said Mrs. Sheldon. “They cost but little, however. I will ask our kiki about them, for I heard him talking English with your father.”

“About one half cent per pair,” said the Japanese. “We call the sandals *waraji*” (wār ä’jī).

The kiki who drew Philip and Mr. Sheldon was dressed like the other except that he wore a blue jacket.

“What do those letters and figures on the man’s back mean?” inquired Philip.

“Those,” replied his father, “give the name and number of the kiki. These men pay a small tax to the government for the privilege of running their jinrikishas. Many are too poor to own their vehicles and so rent them from some company.”

“Are the jinrikishas expensive?” asked Philip.

“They are said to cost from ten dollars to as much as forty dollars,” answered Mr. Sheldon.

“It seems to me that all of the men might own jinrikishas if they cost no more than that,” said Philip.

“You must remember, my boy,” his father replied, “that these men do not receive as high wages as do workmen in our country. I am paying them ten cents each to take us to the hotel. That is higher than the rate paid for long trips, which is about two cents per mile. A kiki who is permanently employed by one man often receives no more than eight dollars per month.”

Just then they reached the hotel, and the kikis dropped the shafts so suddenly that their passengers were nearly spilled out. They all laughed, and the Americans learned later that this is a common custom. After carrying the baggage into the hotel the kikis bowed low and departed.

The hotel was conducted by Europeans, for there are many Americans, English, Germans, and other foreigners in Yokohama. From the veranda of the hotel a great conical mountain could be seen to the southwest. Through the clear atmosphere it appeared to be but a few miles away, and the children were much surprised when their father told them that it was sixty miles distant. Summer and winter it wears a crown of white. It towers far above every other peak in the kingdom, and it is the sacred mountain of the Japanese. "Fujiyama" it is called. See if you can locate it on a map of Japan.

The next day our friends took a train from Tokyo, the capital of the empire, for the "Sunrise Kingdom" has railroads as well as many

other improvements. Yokohama and Tokyo are but eighteen miles apart, and the first railroad built in Japan connected these two cities. This was in 1872. Do you remember when and where the first railroad was built in our country?

The passenger cars contained rooms called *compartments*. The people who travel first class ride in one compartment, those who travel second class in another, while there is a third for passengers holding third-class tickets.

The children and their parents were much interested in Tokyo. It is a large city which was made larger by annexing several towns. Between these towns beautiful parks occupy a part of what was once open country. They found street cars and electric lights in Tokyo, although they are not so common as they are in our cities.

Philip noticed with surprise that there were few tall buildings, most of the stores being but one story high. His father explained that the chief reason for this is the frequent and severe earthquakes. The people of Japan have learned

through many centuries of experience that it is best to build low houses.

Many of the shops seemed without fronts, being so made that they can be thrown open on



Photo by C. H. Hamilton.

On a Country Road in Japan.

fine days. As they passed along the streets the children saw customers sitting on the floor in some of the shops, examining goods.

“What are those long boards in front of the stores?” asked Philip.

“Those,” replied his father, laughing, “are

the signs." They were curious signs, indeed, for they were read from top to bottom!

As Mrs. Sheldon wished to look at some fine carved ivory, they entered a shop, and Mr. Sheldon told the merchant what they wanted. He bowed, and ushered them into a little room. Soon a maid appeared with cakes and tiny cups filled with tea. She bowed when she entered, and she bowed when she left the room. The children soon learned that the Japanese, young as well as old, are very polite and courteous. After our party had enjoyed the refreshments, the ivory was sent for, and the purchase made.

A few days later Mr. Sheldon proposed that they visit a small town about twenty miles from Tokyo. The cherry blossoms were at their best, and they could be enjoyed by the way. So that evening arrangements were made with two kikis, and bright and early the next morning they started on their journey.

Soon they were out in the country with its low thatched cottages surrounded by gardens. Everywhere there were cherry trees loaded with beautiful white blossoms. As the breeze shook

the branches the petals fluttered downward, looking like delicate snowflakes tinted with pink.

“I should like to be here when the cherries are ripe,” said Fannie.

“The cherries are not good to eat,” said her mother. “The Japanese are lovers of flowers, and they raise these trees in countless numbers simply that they may enjoy the beauty of their blossoms. They have a celebration known as the ‘Feast of the Cherry Blossoms,’ and another called the ‘Feast of the Chrysanthemums.’”

About luncheon time they reached a village where they had refreshments. Before resuming their journey the head kiki asked if they would like to visit a Japanese school. Of course they said that they would. I wish that *you* might have walked into that schoolroom with Fannie and Philip. They were filled with wonder at what they saw and heard. The pupils were seated on the floor studying aloud. There was a din, you may be sure. The teacher also sat on the floor, and he smiled his approval at the noisy pupils. When the visitors entered, the

master arose and bowed to them, and his pupils arose and bowed low.

Soon the teacher called a class to recite. The pupils stood before him, and he bowed to them. The pupils then bowed to him, and the recitation began. At the close of the recitation the teacher bowed again, and the pupils once more bowed to him and passed to their seats on the floor. This is quite different from your school, is it not?

Just before dark our friends reached the end of their journey. The same kikis had drawn them the entire distance, although they are usually changed several times in a day. It was a real Japanese hotel at which they stopped: The kitchen was in the front of the house, and the hotel rates were posted on the wall.

After they had bathed, Mr. Sheldon ordered supper. The children expected to go to a dining room, and they could scarcely believe their eyes when a maid brought in four tables, and another maid brought in food. And such tables! They seemed to have been made for dolls, being about six inches in height.

“Where are the chairs?” whispered Fannie, as she looked about the room.

“The Japanese do not use chairs,” answered her mother. “We are to sit upon these mats.” So each person sat down beside a tiny table and the meal began. There were three kinds of soup and as many of fish. Then came rice, tender bamboo sprouts, and the roots of lilies. After this they had cakes and tea.

When they had finished eating, the maids again appeared, and carried away the tables and dishes. As the day's journey had been a long one they were all tired, and in a short time they were ready for bed. Then came another surprise to Philip and Fannie, for they found that they were not to sleep in ordinary beds. The maids brought in padded quilts which they spread over the mats on the floor. But the strangest thing about the beds was the pillows. These were wooden cylinders, covered with cloth. Pieces of paper spread over the cylinders took the place of pillow slips.

After breakfast next morning the jinrikishas were brought to the door of the hotel. There

was much bowing as the guests departed, the whole household following them to their vehicles.

On the return journey they took a different road in order to see as much of the country as possible. They had gone but a short distance when they passed a small company of peasants. These men, although very poor, were traveling on foot to their sacred mountain. Every Japanese, no matter how poor, hopes to visit Fujiyama at least once. Each traveler carried several pairs of straw sandals. The Japanese travel considerably, and much of their traveling is done on foot.

There had been some clouds in the sky in the morning, and while our friends were yet some miles from Tokyo, the rumble of distant thunder was heard. Dark clouds thickened in the southwest, and flashes of lightning darted across them. The kiki's quickened their pace, but soon there came the patter of raindrops. Dropping the shafts, the jinrikisha men quickly raised the tops of oiled paper. Then opening a panel in the back of each cart, they drew out and put on

what proved to be coats of rice straw. Such coats as these are commonly used by the Japanese as we use mackintoshes.

The journey was now resumed, but the increasing mud made the pulling of the carts much harder than it had been before. At the first farmhouse they stopped, and two young men were engaged to help. One end of a slender rope was attached to the cross bar of each jinrikisha, and the other fastened about the waist of a helper.

Darkness had settled down before the hotel was reached, and so the kiki stopped once more and lighted lanterns of oiled paper which were placed on either side of the jinrikishas. Many vehicles were dashing through the streets, their lanterns flashing in the darkness, and the men shouting cries of warning to one another.

Philip and Fannie saw many wonderful things in Japan, but nothing is remembered with more pleasure than their journey in a jinrikisha.

TRAVEL IN CHINA

ON the opposite side of the Pacific Ocean from California is the empire of China. There are about four hundred million people in that strange land, or about five times as many as there are in the United States.

China is a very old country. It is so old that no one knows when it first was settled. The people of that land have done many wonderful things in the past, but for centuries they have made very little progress. They do not care to make use of the arts and inventions of other nations. During the last few years they have made much improvement, but they are still very backward.

If you were to go to China, everything would seem very strange to you, just as our ways of living seem strange to the Chinese. You have probably seen Chinamen, and you know what odd-looking clothes they wear. The men and the women dress very much alike.

Chinese parents do many things which they think will deceive the evil spirits that are believed to be on every hand ready to harm their children. One of these customs is to give their children names that will indicate that they are not loved. The parents think that the spirits will not care to harm children who are not loved.

In a great city in our country everybody is in a hurry. Men, women, and children rush along the streets, and crowd on the trains and street cars. No one seems to have a minute to spare. In a Chinese city we should see a different state of affairs. People seem to have plenty of time. You seldom see a train, for there are few railroads in China. You might look up and down a street in a Chinese city and not see a street car, a cab, an omnibus, an express wagon, or an automobile. In most of the cities in China the streets are but a few feet wide and it would be impossible to accommodate such vehicles as are found in the cities of the United States.

In the country districts, too, it is much the same, and very few people own horses. In the northern part of the empire a clumsy two-

wheeled cart is used. The Chinese used just such carts three thousand years ago. This shows



Photo by E. A. Magie.

A Cart used in Peking.

how little the people change. These carts have neither springs nor seats, so you may be sure that they are very uncomfortable to ride in.

In many parts of the United

States every man above a certain age pays a yearly tax known as a *poll tax*. This money is used for the construction and improvement of roads. Sometimes men are allowed to choose between paying the money and working on the roads.

The Chinese government gives little attention to the roads, and so they are few and generally poor. In the spring they are often so muddy that the carts can hardly be drawn over them.

The northern part of China does not have as many visitors as does the central part. On that

account hotel accommodations are very poor there. You would not enjoy stopping at some of the inns. Often several people must occupy the same room in a building made largely of mud.

Let us step into one of these inns. The floors are of hardened earth. There is no furniture. The beds are like shelves made of several narrow boards, on which there is no bedding. There is no stove, and no gas or electric light. A saucer containing some oil and a wick will serve as a lamp when darkness comes on.



A Canal in China.

Photo by C. H. Hamilton.

There is much travel on the water in China. Much of the country is low and flat, and in addition to the rivers there are many canals which are used as lines of travel. One of these, the *Grand Canal*, is more than six hundred miles long, and was dug hundreds of years ago.



A Chinese Boat.

Photo by W. L. Richardson.

It connects the city of Hangchow with Peking, the capital of the empire. Much of the trade in the interior of the country is carried on by means of this canal.

Steamboats are not common, but clumsy-looking sailboats and rowboats are seen on every hand. Often houses are built facing the canals just as houses in our country face the streets.

Boats are tied to posts at the steps. In fact, thousands of people in China spend their lives on boats, for they are too poor to be able to buy homes on land. The boats are like rafts with small houses built upon them. On these boats



Photo by W. L. Richardson.

Many of the People of China live in Homes Like These.

there are sometimes very tiny gardens. How would you like to live month after month in such a home?

Many of the wealthy people of China have their own private boats, which are called *house boats*, by means of which they travel on the rivers and canals. Such boats are fitted up in

the best of Chinese style. The owners sometimes make rather extensive trips, for they carry their own provisions and are quite independent.

Another Chinese means of conveyance is the *sedan chair*. It seems strange to talk of riding in a chair, does it not? A sedan chair is usually made of bamboo and so is very light. The chair is placed upon a platform to each end of which poles are attached. The sides and roof are covered with cloth, sometimes with silk. The front is left open and serves as a door. The passenger backs in through this opening and seats himself in his chair. There is a little window at each side over which a curtain may be dropped. The chair and its passenger are carried by two men, one at each pole.

But the strangest of all the ways of traveling in China is by wheelbarrow! In the central and southern part of China the wheelbarrow is almost the only wheeled vehicle in use. Just think of a farmer taking produce to town in such a thing! Imagine going sight-seeing or calling in a wheelbarrow!

Do you remember this Mother Goose rhyme about riding on a wheelbarrow?

“When I was a little boy I lived by myself;
And all the bread and cheese I got I put upon a shelf.
The rats and the mice they made such a strife,
I was forced to go to London to buy myself a wife.
The streets were so broad and the lanes were so narrow,
I was forced to bring my wife home on a wheelbarrow.
The wheelbarrow broke, and my wife had a fall,
And down came wheelbarrow, little wife, and all.”

Often in the middle of the narrow, winding roads there are still narrower pavements made of brick or stone. These pavements are for the use of wheelbarrows. There are very many men who make a business of transporting freight, using wheelbarrows instead of wagons. These men usually travel in companies, for in this way they can help one another, and also guard against robbers. A man sometimes pushes a load amounting to five hundred pounds, while loads of two hundred and fifty to four hundred pounds are common.

Just as we have freight and passenger trains, so the Chinese have freight and passenger wheelbarrows. In the city of Shanghai there

are more than two thousand of these passenger wheelbarrows. They take the place of street cars and carriages. Although they have no clanging bells, one can often hear them ap-



Photo by E. A. Magie.

A Passenger Wheelbarrow.

proaching, for the wheels squeak and groan most dismally. Sometimes the Chinaman hoists a sail over his wheelbarrow, for he says that he may as well make use of the wind on the land as on the sea. If the load is very heavy, one person sometimes goes

ahead pulling at a rope attached to the wheelbarrow.

Chinese wheelbarrows are not like ours. The wheel is in the center instead of being at the front end. This throws the weight on the wheel rather than on the man. A rope, the ends of which are fastened to the handles of the wheelbarrow, passes over the shoulders of the man who pushes it. This relieves his arms somewhat. Along each side of the wheel is a sort of platform and on this the load is placed. There may be a passenger on each side, or freight on one side and a passenger on the other.

If you were riding on one of these strange vehicles, you would find that you sat so high that your feet would not touch the ground, although they would dangle downward. In order to prevent yourself from falling off, you would put one arm over the frame which is built up on each side of the wheel. Compare this means of travel with the electric or steam cars with which you are familiar. Surely people who travel on wheelbarrows are not in a hurry.

AN ELEPHANT RIDE

WHO has not enjoyed watching the great elephants at the circus? They are the largest four-footed beasts in the world. What a sight it would be to see a herd of elephants roaming wild in the forests! There are many wild elephants in India and Central Africa, and every year people hunt them.

Sometimes as many as a hundred of these animals are found in a herd. A full-grown elephant is eight or nine feet high at the shoulders, and may weigh as much as five tons. Only the very largest horses weigh as much as *one* ton.

Most of the male elephants in India have tusks of ivory, and, as ivory is very valuable, the animals have been hunted for generations for their tusks. But it is not for the ivory alone that the elephant is hunted. Although it is so much more powerful than man, it is easily tamed and can be trained to do many things.

Catching wild elephants is a dangerous under-

taking. Formerly the hunters used to dig great pits in the forest and cover them with branches of trees. The animals were then driven into these pits. To-day a strong fence is built inclosing a somewhat circular area. A small opening is left, above which a gate is so arranged that it can be dropped instantly. Then a large number of men go into the forest and drive the animals into the yard. The gate is then dropped, and one by one the elephants are caught by means of ropes and led out by tamed animals.

Sometimes the hunters ride into the jungle on the backs of tamed elephants. The wild animals, not suspecting danger in the presence of their fellows, are easily approached. A couple of hunters crawling on the ground fasten ropes about the legs of the animal which they wish to catch. The ropes are then tied to trees.

What a fuss the great beast makes when it discovers that it is captured! It makes a trumpeting noise with its trunk; it pulls up small trees and throws itself on the ground in rage. The hunters take care to keep well out of its reach, you may be sure.

After a few days the elephant discovers that it is useless to struggle, and within three or four months it will obey its master's every command. The driver is called a *mahout*. He can make the elephant move forward or back, kneel, lie down, lift one foot, pick up articles from the ground, and do many other things.

How strange it would seem to ride upon the back of an elephant, yet for centuries people in India and other countries have ridden upon the backs of the huge beasts. To-day they are chiefly used in great processions on festival occasions and by tourists. A passenger elephant has a large box or car upon his back. This is called a *howdah*. Sometimes the howdah is covered and sometimes it is not. Generally it is carved and decorated. Underneath the car are blankets which frequently reach nearly to the ground. The blankets often have gold embroidery and are beautifully decorated. In the car are seats having velvet cushions. Just in front of the car sits a mahout, and sometimes another walks beside the elephant.

Let us mount one of the great animals and



Photo by E. A. Magie.

Riding on an Elephant.

take a ride. The mahout places a short ladder against the side of the elephant and we climb up and seat ourselves in the car. Because we

are riding over the shoulders of the animal, there is a curious lurching motion when he travels.

Our driver is dressed in white, for India is a hot country. Upon his head he wears a *turban* made of many yards of cloth. His feet are bare. His complexion is quite dark, as is that of all natives of India. He sits upon the neck of the elephant and guides the intelligent animal partly by words and in part through the use of a short stick.

How strange it seems to be riding so far above the heads of the people who are on foot! We are surprised to find that the elephant can travel quite rapidly. It is easy to carry on a conversation, for there is no noise to hinder.

We are on a very fertile plain through which the Ganges River flows. Near the mouth of the river is the great city of Calcutta, the capital of India. Every year for many centuries the Ganges River has been overflowing its banks and spreading rich sediment over the land. The population is very dense, and most of the people are poor. They do not have the conveniences

which we have, and many of their customs seem very strange to us.

As we ride along we pass many clumsy carts drawn by bullocks. Almost every one of these



Photo by E. A. Magie.

A Bullock Cart in India.

animals is white. Near the shoulders is a curious hump. Some of the carts look like low cars, while others are a little like omnibuses. They have but two wheels. Just such vehicles as these have been used in India for hundreds of years. Often we can hear these carts before

we can see them, for the wheels creak in a most distressing way.

Far to the northward are the Himalaya Mountains, the most lofty in the world. Their sum-



Travel in Ceylon.

Photo by E. A. Magie.

mits are always crowned with white, and great glaciers creep down their slopes. The Himalayas form a mighty wall on the north of India, over which it is very difficult to pass.

In the forests of India are many fierce tigers. The animals are often hunted on elephant-back,

for the hunters are so far from the ground that they are safe.

Elephants are used in the lumber yards in India and Siam to drag and pile up logs and



Photo by E. A. Magie.

In Mandalay, Burmah.

timbers. In this work they show almost as much intelligence as men.

Domestic elephants are usually fed rice ; about twenty-five pounds is the daily allowance of each animal. The rice is cooked and made into balls, which are placed on a mat. The elephants gather around and are fed by their

keepers. All food and drink is first taken into the trunk and then placed in the mouth.

Elephants are very fond of the water and enjoy bathing and swimming. When no streams are at hand, they will fill their trunks with water obtained from springs or wells and then throw it all over their bodies.

RIDING IN A CHAIR

IF we could see the streets of London as they were two hundred years ago, some of the sights would seem very strange to us. One of these would be people riding about the city in chairs carried by men. These chairs were called *sedan chairs*, and it is said that they derived their name from the town of Sedan in France.

This curious custom of traveling in chairs was first employed in England about 1643. It was not until fifty years later, however, that it became popular. So fashionable did this mode of conveyance become, that people of wealth and position considered it quite improper to ride in coaches.

The men who carried the chairs were called *chairmen*. There were in London and other cities certain stands or places where the chairmen gathered when waiting for passengers. In the year 1711 Parliament passed a law licensing

two hundred public chairs in the city of London. The next year one hundred more were licensed. What is a license? Do cabmen in our cities have to take out a license? The fare, which was fixed by Parliament, was one shilling per mile.



Photo by C. H. Hamilton.

Sedan Chairs.

Usually the public chairs were not very expensive, but some of the chairs owned by wealthy families cost hundreds and even thousands of dollars. Such chairs were lined with the most costly velvet and had curtains of the

most expensive material. The chairs were decorated with gold and silver and sometimes with beautiful stones.

Sedan chairs were carried by means of poles fastened to them. These the chairmen placed



Photo by C. H. Hamilton.

A Swinging Chair, Japan.

upon their shoulders or through straps which hung from their shoulders. The chairs were covered and could be quite inclosed by using the curtains.

In addition to using the chairs during the day, people rode in them to the theater, balls,

receptions, and gatherings of other kinds. At night the chairmen carried torches. The follow-



Photo by C. H. Hamilton.

Another Kind of Sedan Chair.

ing description of sedan chairs and their use was written about two centuries ago:—

“In Bath’s fine city ’tis well known
That at each corner of the town
A certain vehicle is seen,
A pleasant, dancing, light machine,
Which is well fashioned to convey
A beau or belle to ball or play;
Sedans they’re called, and two men bear,
With two long poles, the easy chair,

Which keeps you safe from cold and wet,
And ne'er is known to upset;
Now these same men are chiefly found
To owe their birth to Irish ground."

According to other accounts the chairs were sometimes upset and the passengers spilled out.

In time the chairmen became so numerous that they almost monopolized the streets. Collisions between chairmen and people traveling on foot as well as in coaches became so frequent that laws were passed regulating the use of the streets. In a writing of those days we read the following:—

"Let not the chairman with assuming stride
Press near the wall and rudely thrust thy side;
The laws have set him bounds; his servile feet
Should ne'er encroach where posts defend the street.
Yet who the footman's arrogance can quell,
Whose flambeau gilds the sashes of Pell Mell,
When in long rank a train of torches flame
To light the midnight visits of the dame?
Others, perhaps by happier guidance led,
May where the chairman rests with safety tread;
Where'er I pass, their poles unseen below,
Make my knees tremble with the jarring blow."

After being used extensively for about two hundred years, sedan chairs disappeared from the streets of English cities. Carriages, omnibuses, cabs, and underground cars have now taken their place. There are, however, places where people ride in chairs to-day. In Hong Kong, Canton, and some other Chinese cities, bamboo chairs covered with canvas are used. Over the top of the chair is a canopy to keep off sunshine and rain. The Japanese carry passengers in a swinging chair. I am sure you will be much surprised to learn that sedan chairs were occasionally used in America during colonial times. Benjamin Franklin is said to have ridden in one in Philadelphia.

TRAVEL IN ESKIMO LAND

It is winter where little Shug-lä-wi'nä lives. Indeed, winter lasts most of the year there, for it is in the northland. As far in all directions as Shug-la-wi'na can see there is nothing but snow. Not a tree lifts its bare branches in the wintry air, for no trees grow in that land. Even in the summer there are no fields of grain, no gardens, no flocks or herds to be seen. During the long, long winter the days are very short. The sun remains above the horizon but a few hours at a time.

The very house in which Shug-la-wi'na lives is made of snow. It is low and round. A passageway, also built of blocks of snow, forms the entrance to the house, or *ig'loo* as it is called. This entrance is several feet long, and it is so low that Shug-la-wi'na and the other members of the family *crawl* in and out of the house. This passage prevents the bitter wind from

entering the igloo. The door is formed by a great skin which hangs over the inner opening.

Within this snug snow house are our Eskimo friends. There is the father, mother, Shug-la-



An Eskimo Igloo, or Snow House.

wi'na, and Wē'wē, a little sister four years old. They are all dressed in furs, for, as you know, it is very cold there. The seal and reindeer furnish them with most of the material for their clothing. Within the igloo one suit is sufficient, but when out of doors two suits are needed.

And now Shug-la-wi'na's mother prepares the evening meal. Some oil is put into a hollowed-out stone, and a wick of moss is lighted. This is both stove and lamp. There are no gas stoves or electric lights in Eskimo land. The only wood is the driftwood that is picked up during the summer, and this is too precious to burn.

A kettle of water is put over the fire, and into this some bits of frozen fish are dropped. When this is cooked it is eaten as a sort of soup. After this, pieces of frozen fish are eaten raw and the meal is over. Frequently during the evening the members of the family help themselves to bits of the fish which they seem to relish. The fat obtained from the seal and walrus is also a common article of food, and the drinking of oil is enjoyed.

Very early next morning Shug-la-wi'na's father wakes them up. There is little food in the house, and he is going on a seal hunt. Stepping into the passageway, he chops up some fish for his dogs, and their breakfast is quickly eaten. Then he harnesses the dogs to a sled or

sledge (a *kä-mi'tee* he calls it) and goes in and eats his own breakfast.

The sledge is the only means of travel in the winter. It is made of pieces of driftwood fastened together by means of thongs. No nails are used. The sledges are of two kinds. Some have a kind of railing along each side. This makes it easy to pack on a load consisting of many articles. Other sledges are flat on top. These are used when large animals like the seal or reindeer are to be transported.

You know that sleighs in our country have their wooden runners shod with irons so that they will slip easily on the snow. What do you suppose the Eskimo shoes his sledge with? Ice! These shoes of ice are often as much as a foot high and six inches wide.

When Shug-la-wi'na's father shod his sledge he cut from a pond some cakes of clear ice as long as the runners. He then cut a groove in each piece of ice and fitted the runners into these. Next he put a very little water into the grooves. This quickly froze, and then a few more drops were added. In a short

time the runners were frozen solidly to the shoes.

Of course the ice gradually becomes roughened and wears off. Now before starting off on his hunt our Eskimo friend turns his sledge upside down and examines the shoes with care. He pours a little water on each shoe, and as it freezes he polishes the runner with his mitten. When he has finished, the shoes are as smooth as can be.

To the back of the sledge some deer horns are fastened. These help to hold things on, and in addition the harpoon, snow knife, or other implements can be fastened to them. They also act as a sort of brake, for when the empty sledge is turned upside down by the team, the horns stick into the snow and prevent the dogs from running away with it.

In all Eskimo land there is not a horse, and so dogs, or *mī'kīes* as they are called, take their places. They are nearly as large as the average Newfoundland dogs. Brindle seems to be the most common color. Sometimes there are as many as ten dogs in a team.

You may be sure that Shug-la-wi'na's father did not find it easy to train his dogs to work. At first they quarreled a great deal, but finally they came to know their places, and to obey fairly well. One dog always acts as the leader. He is the most intelligent, and is feared by all of the other dogs in the team. When food is plentiful, the dogs are fed every second day; but when it is scarce, they are sometimes fed but once in five or six days.

The harness is made of seal or walrus hide and is called *äno*. Usually the dogs are hitched tandem. They are placed far enough apart to prevent them from biting each other when they are traveling.

Now our friend is ready to start. He shouts to his dogs, cracks his whip, and soon they are speeding over the snow, for there is no load. His whip has a lash about twenty-five feet long, made of sealskin. The handle is of bone, about eighteen inches long. If any dog fails to do his part or becomes quarrelsome, the lash is sure to reach him.

After traveling several miles, Shug-la-wi'na's

father reaches the edge of the ice where he expects to catch some seals. The seals live under the ice during much of the winter, but occasionally they come to holes where they breathe. The sledge is turned upside down so that the dogs will not run away with it, and taking the harpoon in his hand our hunter walks quietly toward a breathing hole.

With his snow knife he very carefully scrapes away the snow from the hole to make sure that the seal still visits the place. Then marking the very center of the hole, he carefully puts back the snow and waits. As it is very cold and he may have to wait some time, he spreads a piece of deerskin on the snow and stands upon it.

For more than an hour he waits patiently for the seal. At last it comes. The hunter raises his harpoon above his head and very carefully takes aim. Now, rising on tiptoe, he plunges the spear through the hole and into the seal. A long cord of sealskin is attached to the harpoon to prevent the seal from escaping. With the knife, the hole in the ice is made larger

and the seal drawn out. Loading the seal on to the sledge, the team is started homeward. As there is now a load, the driver walks behind.

Shug-la-wi'na's mother hears the crack of the whip and the barking of the dogs as the team approaches the igloo, and she hurries out to see whether her husband has brought home any food. There is much rejoicing, you may be sure, when she sees the seal. Soon it is skinned, and the neighbors are invited in to supper.

After they have feasted to their satisfaction, they sing and tell stories, and pass a pleasant evening. In Eskimo land, when a man tells a story or entertains a company in any way, he turns his face to the wall. Is not that a curious custom? While the grown people are enjoying themselves, Shug-la-wi'na and We'we sit on the bed of skins and play with their toys. Shug-la-wi'na is making a little sledge, while his sister plays with a doll. This doll has a body of wood, and its clothes are made of deer and bird skin.

Thus the long winter passes slowly away. The approach of spring is heralded by the fact

that each day the sun shines for a longer time and with a little more power. As the snow melts, the water drips through the roof of the igloo, and it becomes a very uncomfortable place in which to live. The winter home is now exchanged for the summer residence. This is a tent made of walrus skins, and is called a *tū'pec*.

The short summer is a very busy time. Much food must be obtained for the winter. As the streams and lakes thaw, salmon may be caught. Many birds have come to spend the summer in the northland, and Shug-la-wi'na collects eggs to be used as food. He also gathers large quantities of moss, which he twists into rolls to serve as wicks for the stone lamps.

The sledge is no longer used in journeying from place to place. Instead our friends travel in light skin boats. These boats are of two kinds. There is a boat which carries but a single person. It is called a *kay'ak* and is used by the men only. A much larger boat is called an *im'ǎk*.

Only the framework of these boats is of wood, for, as you remember, timber is very scarce. The

kayak may be twenty feet in length and but two feet in width. Over the wooden frame is stretched the skin of the walrus, polar bear, or seal. Even the top of the boat is covered, with



An Eskimo Kayak.

the exception of a circular opening just large enough to admit the body of a man.

When Shug-la-wi'na's father gets ready to step into his kayak, he very carefully raises one foot and rubs the sand and gravel from his boot. Then he places this foot in the circular hole. He then does the same with the other foot.

Then he stretches out his legs and sits down in the bottom of the boat. It takes great care to get in and out of the kayaks without upsetting them. If the sand were not brushed from the boots, it might wear a hole in the bottom of the boat. Such boats vary in weight from twenty-five to one hundred pounds. The Eskimo can easily carry them from pond to pond. Some pieces of thong attached to the boat enable the owner to tie his harpoon or rifle to the top. The paddle is about seven feet long and has a double blade. It is held in the middle and worked with both hands. The Eskimo can make the kayak glide very swiftly over the icy waters.

The umiak is much larger than the kayak. It will carry several persons and is used when the people are moving their camps from place to place, or going on a great hunting expedition. The women never use kayaks, but they often row the larger boats. Sometimes the umiak has a sail. An umiak twenty-five or thirty feet long will carry fifteen persons, beside much freight. No nails are used in making Eskimo boats.

You see how different Shug-la-wi'na's life is from yours. He does not pick flowers, nuts, or berries. In the winter he lives in a house of snow and in the summer in a tent of skins. His clothing is of skins and furs. The flesh of the deer, seal, bear, and fish, together with a few eggs in summer, are his food. He has never seen a train or a street car, a cab, an automobile, or a bicycle, but travels on a sledge or in a skin boat. You would not want to change places with him, and he would not care to live as you do, for he is as happy in *his* home of snow and ice as you are in *your* comfortable home with all of its conveniences.

RIDING BEHIND REINDEER

Who has not heard of Santa Claus and his wonderful reindeer? How we wish that we could catch one glimpse of him wrapped up in his furs and driving his prancing steeds! Let us take a winter trip to Lapland, which lies east of the northern part of Sweden. Here we shall actually see reindeer harnessed to sleds and pulling them over the snow.

Lapland is a cold, bleak country where little grows. The Laplanders have been crowded farther and farther north, until now they live in a region where only the most hardy people could exist. During the long, cold winter the sun is below the horizon most of the time, just as it is in Eskimo land.

The summer dwellings of the Laplanders are made of the skins of the reindeer. The winter homes are made of wood and stones nearly covered with earth. This is necessary in order to keep out the cold.

If you were to enter one of these huts, you would be invited to sit down on a reindeer skin, for the people do not have chairs. Over a fire, reindeer meat is cooking in a large iron kettle. Hanging from a rafter is a cradle of deerskin made in the form of a shoe. In it is a tiny Lapp baby. The clothes of the different members of the family are in large part furnished by the reindeer.

In our country we reckon the wealth of a family in money, stocks, bonds, and lands. The wealth of the Lapps is reckoned in reindeer. Some very rich families own as many as one thousand, while some poor families own less than a hundred.

Reindeer are from four to five feet high. They are brown above and lighter in color below. Their color is darker in summer than in winter. The horns or antlers are branched. When the feet are placed on the ground the toes spread apart, making the hoofs wider. On this account the animals do not sink into the snow as much as they otherwise would. The chief food of the reindeer is a light-colored moss. This the deer

will find even in the winter by clearing away the snow with feet and nose. This same moss grows in Siberia and northern Alaska, and in each of these regions reindeer are very important.

• In addition to furnishing food and material for the making of tents and clothing, the reindeer supply their owners with milk. Each cow gives a very small quantity, but the milk is rich. Generally the girls and women do the milking while the men hold the animals by means of a short rope or strap. From the milk the women make cheese.

The Laplanders travel from place to place in order to find pasturage for their herds. On these trips the household goods are carried by the reindeer and the people themselves ride. The loads are not placed on the backs of the animals, for their backs seem to be weak, but rather at the base of the neck.

When snow and ice cover the ground the Laplander travels in his sled, or *pulka*. This is long, low, and narrow, and looks a little like a boat. It is pointed at the front end. The Laplander sits in his sled as you might sit on the

floor with your feet straight out before you. Then he wraps his robe of reindeer skin about him and is ready for his drive.

Of course only a few of the reindeer are trained to draw sleds. Those that are to be



Driving a Reindeer.

used in this way are generally selected when they are fawns. They are petted by all of the members of the family and become quite tame.

The harness used is very simple. A great collar is fastened about the neck of the animal. Around the body there is a band or girth. A single tug or trace is fastened to these below the

reindeer's body and also fastened to the front end of the sleigh. When the animal travels, the trace is between its legs.

I suppose that you have pictured Santa Claus driving with two reins just as we do. The Laplander uses but one. Stranger still, this one rein is not attached to a bit, but to the base of the reindeer's horns. This single rein the driver holds twisted about his right hand. He guides the reindeer by jerking at the rein and talking.

Reindeer cannot draw a very heavy load. With one passenger and a little baggage they will skim over the snow at the rate of about ten miles an hour. How strange it would seem to live in a land where there are no trains, no street cars, no carriages, and no automobiles. In making a trip in the summer you would have to walk or ride on a reindeer. In the winter you could use snowshoes or ride in a sled. I am sure that the last way would suit you best.

TRAVELING ON THE ICE

ON the east coast of the North Sea there is one of the most interesting countries in the world. It is the land of canals, of windmills, of dikes, of storks, of wooden shoes, and of skates. The western part of this curious little country was made by the sand and mud brought down by the Rhine, the Meuse, and the Scheldt, and deposited on the floor of the sea.

The brave people who inhabit this land have for hundreds of years fought the ocean in order to keep it from swallowing up their country. Not only have they conquered the sea, but they have taken land from it and changed it into pastures and fertile farms.

I am sure that you have already guessed that this country is Holland. It is often called the Netherlands, which means the low country. This is a good name, for much of the land is actually below the level of the sea. Holland is

a small country, being only about the size of the state of Maryland, but it has nearly five times as many people.

Greitje and Hans are happy Holland children. Their home is close to one of the great walls or dikes that keep the sea from flooding the land. There are more than one thousand miles of these sea dikes. They must be watched very closely, for should a break occur it would rapidly increase in size, and soon farms and villages would be covered with water. The children know well the story of little Peter, who long, long ago saved the country. Have you heard it?

Greitje's mother makes much butter and cheese, for in the pasture there is a herd of fine cows. Everything about the dairy is sweet and clean, and indeed the whole house is always kept tidy. When the children enter, they must leave their wooden shoes at the door. Some of the furniture would seem curious to us. The beds are like cupboards in the walls, and each has a curtain in front of it.

Extending in all directions across Holland are canals and ditches. Even the farm on

which Greitje and her brother live is separated from the adjoining farms by ditches instead of fences. Everywhere along the canals curious windmills lift their arms against the sky. They stand like sentinels guarding the land, and indeed they do defend it better than soldiers could. Do you wonder what the windmills and the canals are for?

The green meadows and farms are in many cases the beds of old lakes and other areas once covered with water. Around these the thrifty Dutch people built dikes, and by means of the windmills pumped the water out. When the tide is low, the canals carry the water to the sea; and when it is high, strong gates prevent the sea from coming in. In this way much land has been added to Holland. The people hope to drain the Zuider Zee and pasture their sleek cows and raise crops on what is now its bed.

It is difficult to build roads in such a swampy country, and in the days when Holland had to fight human enemies as well as the sea she did not want roads. As the canals extend in all directions, they serve the purpose of roads.

You must not understand that there are *no* roads in Holland, but they are not so common as they are in other countries. Some cities, such as Amsterdam and Rotterdam, have many canals.

Hans and Greitje like to watch the canal boats. They are very numerous, for much of the produce of the country is carried on them. They are nearly always painted some bright color, such as red or green. On the forward part of the boat, cheese, butter, eggs, and vegetables are carried to market. In a cabin at the stern of the boat live the owner and his family. Generally the wife and larger children may be seen walking on one bank of the canal pulling the boat.

It is said that there are about fifty thousand people in Holland who spend their lives traveling to and fro on these boats or barges. You remember that there are many people in China who live on boats. The Hollanders take much pride in making their floating homes as neat and attractive as possible. They often have potted plants in the windows and on the deck.

In the winter the canals are frozen, but they are even then important lines of travel. During the winter, in the colder parts of our country, many people skate on ponds, lakes, and streams, but it is simply as a pastime. In Holland skating is the national sport, but it is also a regular means of traveling. Along the canals are guide posts pointing the way to various places. Wherever there may be danger on account of holes or thin ice, notices are posted, while the newspapers inform the people as to the condition of the ice on the different canals.

Dutch boys and girls do not have such skates as yours. They are made of wood with steel blades which curve high over the toes in curious style. The skates are fastened to the feet by means of straps.

The first real winter weather is hailed with delight by young and old. Both Greitje and Hans have skates and they are always anxious to get out on the ice. The small ditches freeze first, but after a while the canals can be safely used.

As soon as the ice is firm and strong, the canals

are very busy places. The children skate to and from school. Physicians skate to visit patients. Men go to their work on skates. Boys taking orders for shops and stores glide up and down the ice streets as they call at the homes of their customers. Goods are delivered on sleds pushed by skaters. Women and girls skim bylike swallows, carrying on their heads baskets of eggs which they are taking to market. People make visits on skates, and everybody skates for pleasure.



On the Ice in Holland.

And what pleasure it is! The keen frosty air and the splendid exercise make the cheeks red and the eyes bright. The steel blades of the

skates ring on the ice as the skaters glide and wheel sharply about, playing games and cutting all sorts of fancy figures. Everybody seems happy. Even Dutch grandmothers do not think that they are too old to enjoy the sport, and they seem almost as much at home on skates as in their wooden shoes.

In order to keep the snow from spoiling the skating, men are hired to sweep it from the ice. Each man has a certain section of a canal which he sweeps. These men are stationed along the canals much as policemen are along the streets in our cities. The skaters quite commonly give these men a small coin as they pass, for in addition to sweeping the ice they make known the dangerous places and give assistance when people break through the ice.

The bridges which span the canals are sometimes so low that skaters strike their heads against them when they stand erect or do not stoop low enough. Sometimes, also, the ice beneath the bridges is not strong, and this is a source of danger. At intervals along the canals booths are erected where refreshments are served.

Several centuries ago a battle was fought between the French and the Dutch. It was in the winter and some of the ships of the Hollanders were frozen in. The French came marching over the ice to capture these, when the Dutch on their swift skates rushed to meet them and drove them back. Probably this was the only battle ever fought by skaters. Let us hope that the brave people of Holland will not have to fight any more battles with men and that they may always be permitted to ride on their canal boats and skate over their frozen canals in peace.

THE "SHIP OF THE DESERT"

IF your home is in the country, you are familiar with green meadows where fragrant flowers bloom in the summer. Perhaps you have waded in the clear waters of some murmuring brook, shaded by the overhanging branches of beautiful trees. Flowers, bees, birds, squirrels, and rabbits are your friends, and they add much to your happiness.

If you live in the city, you have visited the parks. You have enjoyed the many beautiful flowers which grow there. You have watched the boats glide over the smooth waters of the little lakes. You have lain upon the soft green carpet which Mother Nature spreads beneath the trees, watching the fleecy clouds sailing across the blue sky like great ships on the ocean.

There are many children who live where they cannot enjoy such things. You have made the acquaintance of little Shug-la-wi'na, and his

sister We've, who live in a land of snow and ice. There are other children living in very hot lands where little rain falls. These children seldom have the pleasure of picking a flower. All about them stretches a sea of sand or barren hills. Birds and other animals are rarely seen. Water is so scarce that its sound is like sweet music. Such regions are called *deserts*.

Traveling on a desert is both difficult and dangerous. The springs and wells from which water is obtained are often many miles apart. Of course one cannot travel on foot across so dry a country. In fact, it is impossible to use horses in some places, for the noble animals would die of thirst. Why are there no railroads in these regions? Because it would be almost impossible to build them, partly because of the shifting sand dunes which would bury the roads, and partly because there is so little water. Besides this there is little need of railroads there, for the population is very sparse.

For centuries the people of these desert lands have traveled on the backs of *camels*. In Persia, Arabia, on the Sahara and Gobi deserts they

are used to-day, carrying to the outside world such products as dates, silk, shawls, tea, and ostrich feathers. Locate on a map the countries mentioned.

You have probably seen camels at the circus, and remember something of their strange



Photo by E. A. Magle.

Camels carrying Tea.

appearance. They are larger than horses and have long, hairy necks. There is a tuft of hair below the eyes also. Some camels have one hump on the back, while others have two. Each foot has two toes joined by a pad. The thick

pads protect the feet from the burning sands and sharp stones of the desert, and also prevent the animal from sinking in the loose sands.

Let us mount a "ship of the desert," as the camel is often called, and journey out upon the Sahara. Upon the camel's back some blankets are placed, and upon these a saddle. He is then made to kneel upon the knees of the forelegs, and we mount. See how the knees are calloused, for the patient beast has knelt in this manner thousands of times. There are similar calloused places on the breast.

We find the motion of the animal to be very peculiar. It is a sort of swinging motion, for both legs on the same side of the body are lifted together. Fastened about the animal's neck are bells and other ornaments. We travel very rapidly, for our animal is called a *meharis*, meaning a swift camel. The slow animals are used as freight carriers, and average two and one half to three miles per hour.

Soon we pass a *caravan* slowly traveling in the opposite direction. A caravan is made up of many camels and their drivers. In this cara-

van there are two hundred camels all loaded with dates. A very few of the animals are white. Some are gray, some brown, some black.



Photo by E. A. Magie.

A Camel Wagon.

The drivers are dressed in loose robes of white material. These robes are gathered at the waist by means of a belt. On the head is a turban, and the cloth is so arranged that

it can be made to cover the face in case of a sand storm. Sandals are worn instead of shoes.

Hour after hour we journey over the terrible sands. No houses, no meadows, no orchards, no fields of grain, and no water. At length we stop to eat and rest, for the noonday sun is powerful. The animals are fed a few dates, but they are not watered, for there is little water on hand, and it is several days' journey to the nearest spring.

The lining of the stomach of the camel contains many cells, and when the creature drinks, these absorb considerable water. It is these cells which enable the camel to go ten days or even more without drinking. You see why the camel is used in traveling on deserts.

Camels are very different from horses. They are not so intelligent, and they are not affectionate. They do not like to be petted, and in fact are sometimes rather ill-tempered.

Just before sunset we pitch our tents in a cheerless place. There are no trees, no grass, and no water. Although the day was so hot, the night is quite cold, and we are glad to have a thick blanket over us when we lie down to sleep.

Day after day our journey is much the same. In places the surface of the desert is quite level, but in other places there are rocks and hills. Some of the hills are composed of sand which has been drifted by the winds, as snow is drifted on our prairies. Such hills are called *dunes*. The side toward the wind is steep, while the opposite side has a more gentle slope. Some-

times the drifting sand covers men and animals alike.

Our supply of water is carried in leather bottles. Of course the water is rather warm during the day, but we are very thankful to have enough to drink. The air dances and quivers above the sand as does the air over a bonfire.

And now the sky which has been so clear for several days takes on a brassy appearance. In the distance we see a dark cloud. We urge on our camels, but the cloud grows and approaches rapidly. The wind begins to blow, and the air is filled with fine sand. We know that one of the dreaded sand storms is upon us, and we dismount quickly.

The patient camels stretch themselves out upon the sand, and we hasten to pitch the tent. Even when inside, fine sand almost blinds and chokes us. We can hear the camels groaning as the wind hurls the sand grains against them. After a few hours the worst of the storm has passed and we mount our camels and ride on.

Toward evening of the next day we see in the distance some dark objects. A little later we

realize that we are approaching trees. Our camels quicken their pace, for their keen eyes saw the welcome sight before ours did, and well they know that there is water to be found in the shade of these trees.

The grove that we are approaching consists of beautiful date palms. Their straight trunks, which rise for many feet without a limb, are crowned by long, graceful, feathery branches, bearing bunches of delicious dates. In this grove are white, flat-roofed dwellings made of mud in which the owners of the palm trees live. Sparkling water flows from a spring, gladdening the heart of man and beast. This fertile spot is called an *oasis*. There are many such places on the desert.

We dismount from our camels and lead them to the spring. How they enjoy the cool water, for they have not had a drink for days! While they are storing up water in the cells of which you have read, we fill our leather bottles, and so men and beasts are once more prepared for another long journey. The tall, dark-skinned dwellers of the oasis greet us kindly and offer

us food. We should be glad to rest beside the spring in the shade of the date-palm trees; but we still have many, many miles to travel, so after a few hours' rest we press on.

This oasis is like an island set in the midst of the ocean. How beautiful and restful it is after spending many days upon the dreary sands! The children who live upon this island never go beyond its shores. Here under the life-giving palms they play and watch with great interest the "ships of the desert" as they approach from time to time, or slowly disappear beyond the sandy billows of the desert, carrying to the outside world their burden of dates.

HORSELESS CARRIAGES

How often when you are crossing a street you hear the ringing of a bell or the sound of a horn. As you look up you see an automobile dash along. Perhaps it is carrying a business man down town to his office. It may be that a physician is making a call. The person riding in the car may be going to do some shopping, or possibly it is some one who is taking a "spin" for pleasure. Automobiles are now very common on country roads as well as city streets.

Although horseless carriages have been used extensively for only a few years, they were first made very long ago. Five years before the Revolutionary War broke out in America a Frenchman named Nicholas Joseph Cugnot made and operated a steam wagon. It is said that this very machine is now on exhibition in the city of Paris. Would you not like to see it? It was of course very different from the automobiles in use to-day.

Ten years later another Frenchman constructed and ran a similar machine in the city of Amiens. The terrible French Revolution which began in 1789 took the thoughts of people away from such things as automobiles, and little was done with them for some time.

Soon inventors in Great Britain took up the problem. You remember that Richard Trevithick was the inventor of the locomotive. Before making his first locomotive he built what he called a steam motor. In this he made a trip of ninety miles in the southern part of England.

Men who owned omnibuses or coaches were much opposed to the use of steam wagons, for they feared that their business would be ruined. In 1829 four men were stoned while riding in an automobile, and two of the party were severely injured. Six years later than this an automobile was operated before a special commission of the House of Commons. The machine was a great success, traveling at the rate of thirty-five miles an hour. The commission made a very favorable report on the use of such machines.

From this time steam coaches rapidly grew in favor, and they were regularly employed in carrying passengers between London and near-by cities. There was another great obstacle to the progress of the steam coach, however. About this time there was great interest in railroad building. Of course the railroad companies did not want to see steam coaches carrying passengers, and so reports were circulated declaring the steam wagons to be dangerous. In some cases, people went so far as to place heaps of stones in the roads so as to make it difficult to run automobiles. At last Parliament passed a law which said that a man on foot, carrying a red flag, must go ahead of every automobile to warn people of its approach. This law made the steam coaches useless, and so for some time little interest was taken in them.

One day, late in the summer of 1855, three American inventors were talking about automobiles, which at that time had never been seen in our country. The men felt sure that they could make such machines, and each finally agreed to build one. They went to work, and in

due time the automobiles were finished. Two of them were failures; but the third, which was made by Richard Dudgeon, was a success. The inventor ran his machine through the streets of New York City, and its appearance always drew a crowd. It was placed on exhibition in the Crystal Palace, where it was destroyed by fire.

Mr. Dudgeon was not discouraged, however, and in 1860 he made a second machine which was just like the first one. Here is a picture



Steam Automobile built in Long Island by Richard Dudgeon
in 1860.

By Courtesy of the *Scientific American*.

of it. What a clumsy-looking thing it was! A bench extended along each side of the car, and upon these the passengers, ten in number, were seated. Under the benches were water tanks from which the boiler was supplied. Fuel, also, was carried. You observe that the machine had a smokestack something like that on a locomotive. The wheels were of solid cedar wood.

In 1866 two brothers, James and Henry House, made an automobile in Bridgeport, Connecticut. Their machine carried five passengers in addition to the driver and fireman. All of these early automobiles were run by steam, while to-day gasoline and electric machines are seen everywhere.

Within the last ten years, automobiles have come into common use in nearly all parts of the world. The United States ranks first in the number made and used. The horseless carriage is rapidly taking the place of the horse. Motor omnibuses are now in use in London, Paris, New York, Chicago, and other great cities. In 1906 there were more than seven hundred of these vehicles in London alone.

Automobiles are now used in many ways and

by many people. They are used in making long journeys as well as short trips. Several parties have crossed our continent in touring cars, and in 1907 a number of people made the journey from Paris to Peking in them. About the



An Automobile.

Courtesy of the Autocar Company, Ardmore, Pa.

middle of July they crossed the great Gobi Desert, where the travelers had many interesting experiences. Several times the machines became disabled, but the desert dwellers pulled them out of the sands with their oxen, and brought the hungry travelers camel's milk and other food.

BICYCLES

TWENTY-FIVE years ago bicycles were seldom seen. Now they are in common use in every city and village in our country. They are used for business and pleasure not only in America, but in nearly all parts of the world as well. They furnish a cheap and rapid means of getting from place to place wherever there are good roads or even good paths.

The first bicycles were made in France in 1816. They were quite different from the bicycles with which you are familiar, for they had no pedals. How do you suppose people traveled on such wheels? The rider sat in his saddle and pushed himself along by touching his feet to the ground. A machine of this kind found its way into New York City in 1819. It was called by some the "hobby horse."

In 1855 a French locksmith attached pedals to a bicycle. People at once saw that this was

a great improvement and the machines became popular. Years ago bicycles were made with the front wheel about three times as high as the rear wheel. In some cases the front wheel was as much as sixty inches in diameter. They were made in this way because it was believed that the high wheel was necessary in order to secure great speed. A fall from such a bicycle was often a very serious matter, and so what was called the *safety* began to be manufactured. It would look very odd to-day to see a person riding on one of the high wheels.

About the year 1870 hard rubber tires were first used on bicycles. With these, riding was very much easier than it had been before, but when about twenty years later the pneumatic tires came into use, the pleasure in riding was increased still more. The wheels of those days weighed from sixty to seventy pounds. To-day the ordinary wheel weighs only about twenty pounds.

In addition to countless bicycles, we now see many motor cycles in use. These were first made in France about 1895, although a steam tricycle

was made in that country as early as 1884. The use of motor cycles has increased wonderfully during the last five years. Machines of three horse power, weighing scarcely one hundred pounds, are now in use. With one of these one can travel uphill or downhill at the rate of twenty miles an hour. A few weeks ago a young man rode a motor cycle to the top of Mount Wilson near Pasadena, California. This mountain is about six thousand feet above the level of the sea, and the narrow road leading to its summit is quite steep.

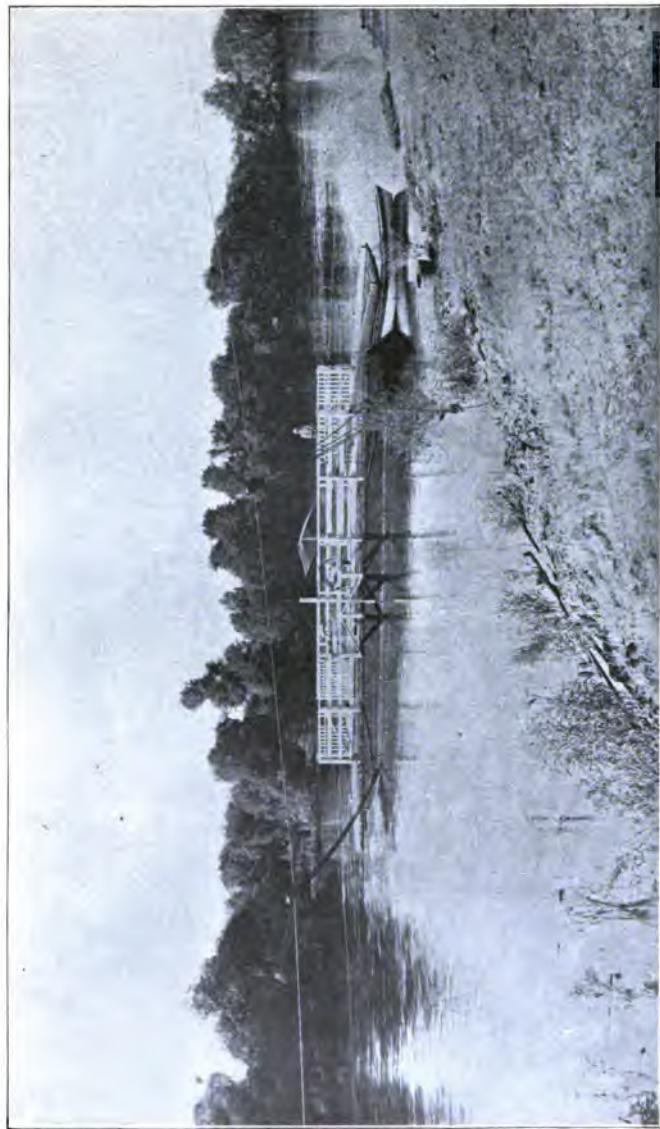
Think of the many ways in which wheels are now used. Men and women ride them in going to and from their work. Messenger boys use them in delivering telegrams. Children ride them to school. In going on pleasure trips they are often used by people where formerly the horse was employed. People visiting in foreign lands frequently ride their wheels from city to city and even from country to country. This makes it possible to stop whenever and wherever the traveler wishes. It is also less expensive than traveling in other ways.

TRAVELING ON THE WATER

MAN'S natural home is upon the land, and for a long, long time oceans, lakes, and even great rivers, like the Mississippi and Amazon, hindered his travels. How he learned to make his first boat no one knows, for that was a very long time ago. It was probably nothing but a log on which he sat and paddled himself across some pond or stream.

In time people discovered that several logs could be bound together, thus forming a much better means of conveyance, called a *raft*. Rafts will not tip over and they will carry large loads. They move very slowly, however, for they must be pushed by means of poles, or allowed to drift with the current.

Many years ago men living along the Ohio River used to build rafts which they loaded with the produce of the country, — corn, tobacco, flour, salt pork, and rope. The rafts were then floated



An Old-time Ferry-boat.

Photo by C. C. Pierce & Co.



down to the Mississippi. Some of them went on as far as the city of New Orleans, where the produce was sold. Others stopped at nearer ports. The owners of the rafts or barges would also sell the lumber of which they were made and then go home and prepare for another trip. When Abraham Lincoln was nineteen years of age, he went to New Orleans in charge of a raft.

At the present time great lumber rafts are towed behind ships from the Puget Sound country to San Francisco, and sometimes to Southern California. Such rafts are made up of a great number of logs bound together by chains. When the rafts reach their destination, the logs are sawed into boards.

Very clumsy boats are made by hollowing out logs. With such tools as carpenters have to-day this would not be a very difficult task; but when people had only stone knives and axes it was not an easy matter. Sometimes most of the work was done by means of hot stones. With these the centers of the logs were burned out, and the inside of the boat was then smoothed somewhat with the clumsy tools of which I have

spoken. Such a boat as I have described is called a *dugout*. Why?

Dugouts were used by the Indians in some parts of our country, and by the early white



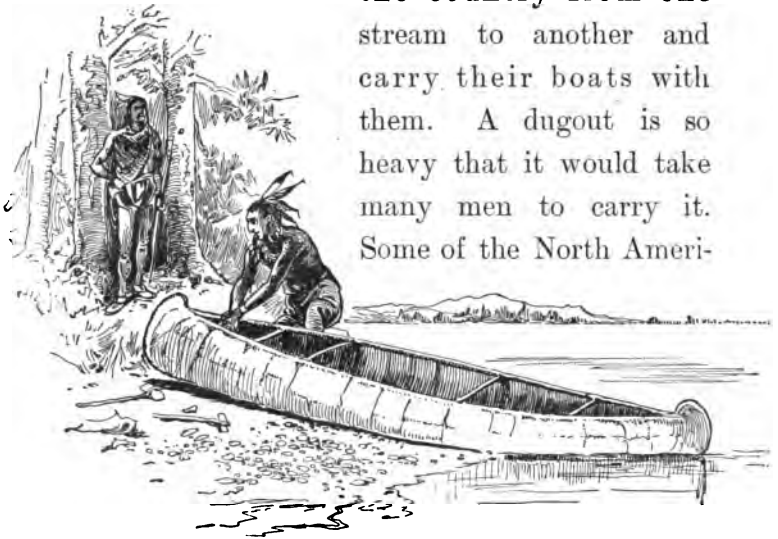
Photo by W. L. Richardson.

A Dugout.

settlers as well, for without sawmills it was difficult to make boards, and so, of course, the people could not have boats of the ordinary kind. In some parts of South America the Indians use dugouts to-day. They are often as much as twenty-five feet long, and from two to three feet in width. Large as they are, each boat is made

of a single log. Such boats will carry several passengers. The Indians move the boats by means of paddles or poles.

White men, as well as Indians, when traveling in the forest, sometimes wish to go across the country from one stream to another and carry their boats with them. A dugout is so heavy that it would take many men to carry it. Some of the North Ameri-



An Indian Canoe.

can Indians have for a long time used beautiful light *canoes* made of the bark of the birch tree. Such boats are so light that they can easily be carried from place to place.

Of course the canoes are not made entirely of bark. The frame is made of the limbs of the cedar tree, which the Indian bends into the proper shape. Large pieces of birch bark are sewed together and with these the frame is covered. In order to make the canoe perfectly watertight, the seams between the sheets of bark are covered with a gum obtained from the fir tree. Have you read how Hiawatha made *his* birch bark canoe?

“Give me of your bark, O Birch Tree,
Of your yellow bark, O Birch Tree!
Growing by the rushing river,
Tall and stately in the valley!
I a light canoe will build me,
Build a swift Cheemaun for sailing,
That shall float upon the river,
Like a yellow leaf in autumn,
Like a yellow water-lily!
Lay aside your cloak, O Birch Tree!
Lay aside your white-skin wrapper,
For the summer time is coming,
And the sun is warm in heaven,
And you need no white-skin wrapper!’

* * * * *

And the tree with all its branches
Rustled in the breeze of morning,

Saying with a sigh of patience,
'Take my cloak, O Hiawatha!'
With his knife the tree he girdled;
Just beneath its lowest branches,
Just above the roots, he cut it,
Till the sap came oozing outward;
Down the trunk, from top to bottom,
Sheer he cleft the bark asunder,
With a wooden wedge he raised it,
Stripped it from the trunk unbroken.

'Give me of your boughs, O Cedar!
Of your strong and pliant branches,
My canoe to make more steady,
Make more strong and firm beneath me!'
Through the summit of the Cedar
Went a sound, a cry of horror,
Went a murmur of resistance;
But it whispered, bending downward,
'Take my boughs, O Hiawatha!'
Down he hewed the boughs of Cedar
Shaped them straightway to a framework,
Like two bows he formed and shaped them,
Like two bended bows together.

'Give me of your roots, O Tamarack!
Of your fibrous roots, O Larch Tree!
My canoe to bind together,
So to bind the ends together
That the water may not enter,
That the river may not wet me!'
And the Larch, with all its fibers,

Shivered in the air of morning,
Touched his forehead with its tassels,
Said, with one long sigh of sorrow,
'Take them all, O Hiawatha!'
From the earth he tore the fibers,
Tore the tough roots of the Larch Tree,
Closely sewed the bark together,
Bound it closely to the framework.

'Give me of your balm, O Fir Tree!
Of your balsam and your resin,
So to close the seams together
That the water may not enter,
That the river may not wet me!'
And the Fir Tree, tall and somber,
Sobbed through all its robes of darkness,
Rattled like a shore with pebbles,
Answered wailing, answered weeping,
'Take my balm, O Hiawatha!'
And he took the tears of balsam,
Took the resin of the Fir Tree,
Smeared therewith each seam and fissure,
Made each crevice safe from water.

'Give me of your quills, O Hedgehog!
All your quills, O Kagh, the Hedgehog!
I will make a necklace of them,
Make a girdle for my beauty,
And two stars to deck her bosom!'
From the hollow tree the Hedgehog
With his sleepy eyes looked at him,
Shot his shining quills, like arrows,

Saying, with a drowsy murmur,
Through the tangle of his whiskers,
'Take my quills, O Hiawatha !'
From the ground the quills he gathered,
All the little shining arrows,
Stained them red and blue and yellow,
With the juice of roots and berries ;
Into his canoe he wrought them,
Round its waist a shining girdle,
Round its bows a gleaming necklace,
On its breast two stars resplendent.

Thus the Birch Canoe was builded
In the valley by the river,
In the bosom of the forest ;
And the forest's life was in it,
All its mystery and its magic,
All the lightness of the birch tree,
All the toughness of the cedar,
All the larch's supple sinews ;
And it floated on the river
Like a yellow leaf in autumn,
Like a yellow water-lily."

On the lakes in the pine forests of northern Wisconsin I have seen Indians, kneeling in their birch-bark canoes, paddle swiftly and silently from shore to shore. Instead of oars the Indians use short paddles which are dipped now on one side, now on the other side of the canoe.

Very strange boats are used at Bagdad on the Tigris River. They are perfectly round and look a little like great bowls. What do you suppose they are made of? They are built of reeds and are then covered with a layer of asphalt to keep out the water. The boatman moves and guides his boat by means of a broad paddle.

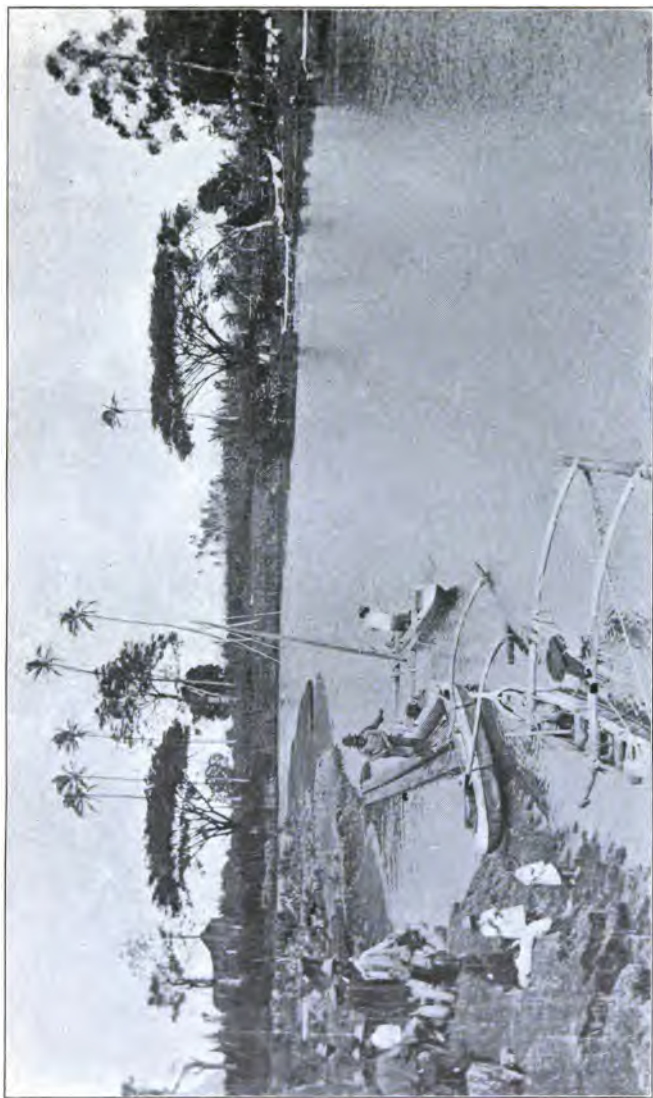


An Indian Boy in a Grass Boat on Lake Titicaca.

The fact that grasses are still used in making boats shows how these people cling to ancient customs.

Just such boats as these have been used in that part of the world for three thousand years.

People who engage very little in commerce must make their boats of such material as they have at hand, and know how to use. The Indians who live on the shores of Lake Titicaca make grass boats called *balsas*. The grass of



Native Philippine Boat with Outrigger.

Photo. by C. C. Pierce & Co.



which the balsas are made grows on the shores of the lake. Lake Titicaca is one of the most lofty lakes in the world and is situated partly in Peru and partly in Bolivia.

The boats are light, long, narrow, and pointed at each end. Sometimes the points rise two feet above the rest of the boat. Some of the balsas carry but one person and some are fitted with a mast and sail and will accommodate eight or ten passengers.

Here is a picture of a very remarkable boat. It is used in the Philippine Islands. The body of the boat is simply a great log cut or burned out on which is placed a frame of bamboo. Near each end of the boat is a crosspiece of bamboo several feet in length. On one side of the boat, and extending parallel to it, as you see, is a long piece of bamboo fastened to the crosspieces. This frame is called an *outrigger*.

You know that some plants have hollow sections in their stalks. Bamboo grows in the same way. As these hollow sections are filled with air, it makes it possible for the boats to float a great weight. It is almost impossible

to capsize such boats, and besides they are very fleet. As you see, the large ones have sails.

Do you know that there are boats made of cloth? Cloth boats are often used by hunters and fishermen who want a boat light enough to be easily carried. Some of the boats of this



One of the Boats in use in Burma in Southern Asia.

kind weigh but seventy pounds, yet they are sixteen or seventeen feet long. The frame is made of strips of very light wood and over these canvas is stretched. A very interesting thing about canvas boats is that they can be folded up and thus are easily carried.

Fifty years ago boats drawn by horses or mules were used a great deal. Such boats are

called *canal boats*, because they are used on canals. The animals that draw the boats walk on a path called a *towpath*, which is on one bank of the canal. A long rope with one end fastened to the front of the boat and the



Traveling on a Canal Boat about 1830.

other to the animals enables them to draw or tow it.

James A. Garfield and Grover Cleveland, when boys, drove horses on a towpath. What great office did each of these men fill?

Because canal boats are flat bottomed, they can be used in quite shallow water. Some of the things that are carried on such boats are grain, potatoes, coal, and stone. They are not now used for carrying passengers. The Erie

Canal, which extends from Buffalo to Albany, New York, is still quite important. Locate it. Why does it not connect Lake Ontario with the Hudson River? Owing to the rapid growth of railroads in our country, canals are not used as much as they once were.

A boat that is moved by hand is, of course, small. Long voyages cannot be taken on such boats, for it is impossible to carry a sufficient supply of water and provisions. Besides, the time required to make a long journey in one of these boats is too great; there is no chance for the passengers to rest, and a storm would be almost certain to capsize the craft.

When people discovered how to use sails on boats, they built larger vessels and made longer voyages. Columbus made all of his voyages to America in sailing vessels. His ships, which were considered large in his time, would appear very small and clumsy to-day. Columbus was seventy days in making his first trip to the New World. Now the journey can be made in less than a week.

You find your way about a city by means of

the names of the streets and the numbers on the buildings. If you are traveling in the country, you inquire as to roads and landmarks. On the ocean there is nothing of this sort to guide the traveler. There is just the endless expanse of blue water below and blue sky above. Of course the sun and the stars help the sailors to some extent, but these are not enough, and sometimes they are hidden.

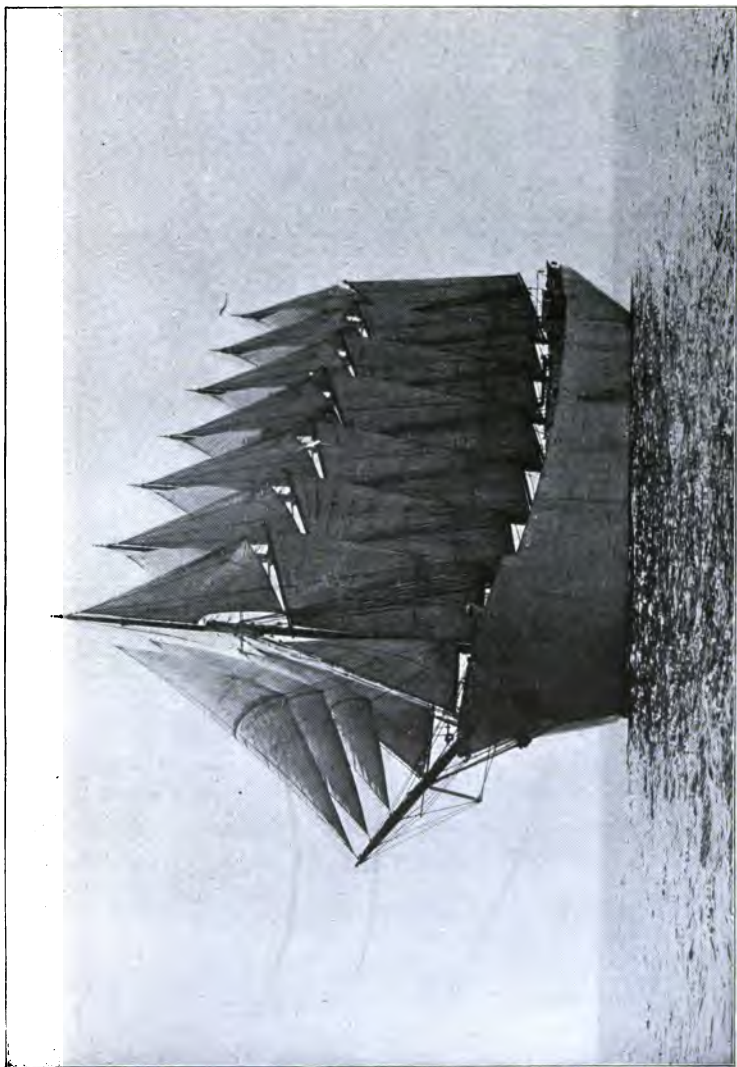
The sailor keeps his way upon the sea by means of a wonderful invention called the *mariner's compass*. This is a circular box; around the edge of the inside are letters indicating the directions or *points of the compass*. A needle fastened in the middle swings within the box, and one end of this needle always points nearly to the north. Knowing where north is, it is easy to find the other directions. The box has a glass face like that of a clock.

This wonderful instrument is said to have been invented by the Chinese. Before the days of the compass, sailors would seldom venture beyond sight of land, for if they did there was danger that they would never again reach the

shore. Without the compass sailors would not care to cross the ocean to-day.

It is a beautiful sight to see a large ship with all of its sails spread flying before the wind. How like a great white bird it seems as it skims over the waves! The sailors who manage the ship need to be both brave and strong, for sometimes there are mighty storms upon the sea. Then the sky becomes dark, lightning flashes from the angry clouds, and the roll of thunder seems like the sound of giant cannon. The white-crested waves leap higher into the air as they strike the ship which they seem to be trying to swallow. Now, with the vessel pitching and tossing, the sailors must climb their swaying rope ladders nearly to the tops of the tall masts and reef the sails.

But after the storm, there always comes the sunshine. Then the sky seems brighter, the air purer, the ocean bluer, and life sweeter than before. Storms are not all upon the ocean. There are human tempests as well as those of wind and rain, and we must each learn to battle with *our* storms and to conquer them.



*The Seven-masted Schooner **Thomas Lawson**.*



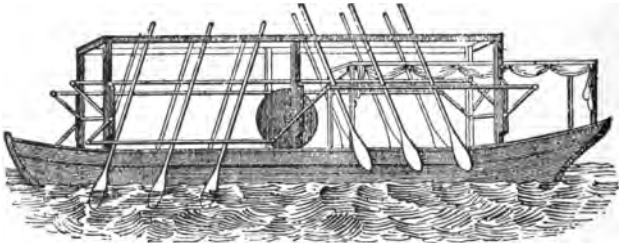
STEAMSHIPS

IN the year 1807, more than one hundred years ago, farmers living beside the Hudson River saw a wonderful sight. A boat went up the river without the use of oars or sails. Masses of smoke rose from it, and at night a cloud of fire seemed to hover over it. It is no wonder that the people were excited, for this was the first steamboat ever seen on the Hudson. It was named the *Clermont*, and it steamed up the river at the rate of five miles an hour. It reached Albany thirty-two hours after leaving New York City. Locate these two cities on a map.

The following is an extract from a letter which Mr. Fulton wrote to the editor of the *American Citizen* on his return to New York:—

“I left New York on Monday at one o'clock, and arrived at Clermont, the seat of Chancellor Livingston, at one o'clock on Tuesday—time, twenty-four hours; distance, one hundred and

ten miles. On Wednesday, I departed from the Chancellor's at nine in the morning, and arrived at Albany at five in the afternoon — distance, forty miles; time, eight hours. The sum is one hundred and fifty miles in thirty-two hours, equal to near five miles an hour. On Thursday, at nine o'clock in the morning, I left Albany, and arrived at the Chancellor's at six in the evening; I started from thence at seven,

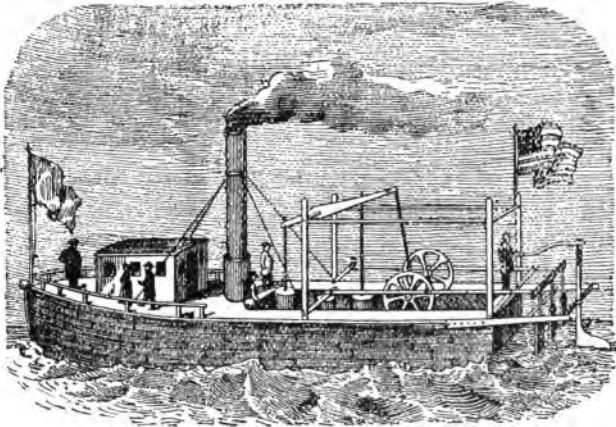


One of the First Steamboats Made.

and arrived at New York at four in the afternoon, one hundred and fifty miles, equal to five miles an hour. Throughout my whole way, both going and returning, the wind was ahead; no advantage could be derived from my sails: the whole has, therefore, been performed by the power of the steam engine.”

The one hundredth anniversary of the trip of the *Clermont* was to have been celebrated in August, 1907. The celebration was, however, postponed until August, 1908.

Four years before this date, Mr. Fulton, who had gone from his home in Pennsylvania to



Another Steamboat of the Early Nineteenth Century.

Europe to study painting, launched a small steamboat on the Seine River in France. Napoleon, the Emperor of France, became interested in the matter, and it was arranged to have the steamboat make a trial trip on a certain day. Early on the morning of the

appointed day news came to Mr. Fulton that his boat had sunk during the night. This was, of course, a great disappointment, but the inventor determined to continue his work in his native land. Mr. Fulton was not the first man to apply steam to boats, but he was the first man to make a success of the undertaking.

Other steamboats were soon built, you may be sure. In 1812 Mr. Fulton built one at Pittsburg. This boat steamed down the Ohio to the Mississippi, and then down the Mississippi to New Orleans. Trace its voyage on a map. In 1819 a boat called the *Savannah* went from the city of the same name to Liverpool. This voyage required twenty-two days.

When the *Savannah* was approaching the city of Cork, Ireland, an amusing thing happened. Those who discovered the vessel approaching saw the smoke hanging over it, and supposing that it was on fire they sent two ships to rescue her passengers and crew. You can imagine the surprise of the people when they found that the boat was not on fire, but was being driven by steam.

Soon steamboats were in common use on the ocean, on our Great Lakes, and our rivers. The steamboat does not depend upon the wind, and it can make headway against the current of a stream, which a sailing vessel finds it difficult to do. In early times sailing vessels experienced considerable difficulty in ascending the Mississippi to New Orleans, the journey often requiring many days, although the return trip could be made in a few hours.

Of course a steamship, like a train, requires fuel to keep it going. The distance from New York to Liverpool is so great that vessels starting on this voyage must take an immense amount of coal or other fuel. Sometimes crude oil is used as a fuel. In the early days the steamboats on the Mississippi used to burn wood.

During the one hundred years that steamboats have been in use they have been wonderfully improved. To-day we can cross the Atlantic in less than a week and with little danger of accident. Some of the newer steamships are more than six hundred feet in length — about as long as an ordinary city block, and

one, the *Lusitania*, is seven hundred ninety feet long.

Let us stand on the wharf and see what this great liner takes on board before starting for Europe. Thousands of tons of coal are placed in the bunkers, for about eleven hundred tons of coal are used each day. Far down in the hold



The *Lusitania*

By Courtesy of the Cunard Steamship Company.

of the vessel are the men who handle the coal. They are called *stokers*. With hands and faces blackened by their work, these men feed the ever hungry furnaces night as well as day. Were it not for the work of the stokers we could not take this ocean trip. There are thousands of pounds of meat in addition to fish, poultry, eggs, and game. More than one hundred bar-

rels of potatoes are taken on board. There are many barrels of flour, tubs of butter, cans of milk, and wagon loads of ice. This is not all, for in addition we see great quantities of vegetables, fresh fruits, and ice cream.

Do you wonder why so much is taken on board? I will tell you. The good ship is to carry more than two thousand passengers in addition to her crew of eight hundred. It takes a great deal of food to supply so many people for a week.

Let us imagine that we have gone on board the ship and are now comfortably located. As we have plenty of time at our disposal, we will explore our ocean home from end to end.

The vessel is built of steel and is very strong. Great smokestacks rise into the air, and a long line of smoke drifts lazily behind us as we rush forward. Near the forward end of the vessel is a part elevated above the rest. This is called the *captain's bridge*. Here the captain or the first officer is stationed all the time.

Just in front of the bridge and a little lower is a small cabin in which the pilot stands. It is

his duty day and night to guide the great ship over the trackless ocean. This he does by means of a wheel which he turns now this way and now that as he reads the compass before him. The wheel is connected with the rudder at the stern of the vessel. Perhaps you have seen rudders on rowboats.

Around the edge of the boat is a walk or promenade several feet wide. A trip around the ship gives us considerable exercise. Here are chairs so that passengers may sit out of doors during pleasant weather. In the center of the ship are the cabins. The first cabin is fitted up like a palace. There are electric lights, electric bells, rich carpets, costly furniture, and beautiful pictures. There is a piano, a reading room, a writing room, and a gymnasium. The dining room is beautifully furnished and seats four hundred people. An electric elevator and several broad stairways connect the different decks.

The accommodations in the second cabin are excellent also. Steerage passengers occupy the lower part of the vessel. Traveling steerage is

much cheaper than traveling first or second class.

You will be much interested in the beds, or *berths* as they are called. The ship has a large number of bedrooms called staterooms. Generally there are two or three berths in a stateroom. The *Lusitania* has many single-berth rooms. The berths are fastened firmly to the walls, for during storms the ship plunges and tosses about on the waves. In each room there is a washstand, mirror, glasses for water, hooks for clothing, electric light, and an electric button so that one may call the steward or stewardess if assistance is needed.

The oceans are no longer barriers to travel as they once were. It takes only a little longer to go from New York to Liverpool on an ocean liner than it does to cross our continent by rail. Even when out in mid ocean we are not cut off from the rest of the world. By means of a wireless telegraph station, which our ship carries, we can communicate with the shore and with other vessels carrying such stations. How wonderful it is to be able to journey over the oceans

in this way! This great ship, like a floating palace of a king, carrying its passengers with speed, comfort, and safety, is as wonderful as many of the things that we read about in our fairy tales.

ON THE CANALS OF VENICE

You have all heard of "sunny Italy," but perhaps you do not know just where this country is. Look at a map of Europe and you will find projecting southward into the blue waters of the Mediterranean Sea a long, narrow peninsula, a little like a boot in shape. This is the peninsula of Italy. The word "Mediterranean" means *in the midst of the land*. Why was the sea given this name?

Italy is not a large country. In fact, it is much smaller than the single state of California, but it has many times as many people. That means that the Italians live much closer together than do people in California and many other states.

The children of Italy are familiar with many sights which most of you have never seen. In that country there are extensive vineyards, where, in the autumn, the rich clusters of

grapes are gathered from their hiding places in the dark green foliage and made into wine. There are also orange and lemon groves with their golden and yellow fruit. On the marshy lands are fields of rice, for rice will not grow on dry lands. Many groves of chestnut trees are found on the mountain slopes. Chestnuts are quite important as a food in Italy. They are boiled, and roasted, and eaten in other ways.

Except in the mountains there is little cold weather in Italy. Snow and ice are not common, and the children do not snowball or skate. Because of the mildness of the climate, many people go from the United States to Italy every winter.

The people who lived in Italy hundreds of years ago were called *Romans*. Their chief city was Rome, and although it was built so long ago some of the old buildings are still standing. You would enjoy a visit to Rome, I am sure; but I want to take you to Venice, a city on the northeastern coast of Italy.

Venice means *come again*, and after you have seen the city, you will be anxious to visit it a

second time. About two miles from the shore are a large number of low, flat islands, and upon these the city stands. Between these islands there are narrow bodies of water called *canals*. As you look at Venice from a distance its buildings seem to rise directly from the water, and in fact many of them do. The houses are built along these canals as houses in other cities are built along streets. Indeed, the canals *are* the streets in Venice, and there are more than one hundred of them.

It would seem very strange to you to live in such a city. There are no street cars dashing along; no carriages and wagons rattling over pavements; no chance to run across the street to join a company of playmates. How do the people get from one part of the city to another? you ask. This is the interesting part of the story. They travel by means of boats. These boats take the place of cars, carriages, automobiles, and even wagons. They glide swiftly and silently along the canals, or they drift lazily as their passengers may feel inclined. Such boats are called *gondolas*. You may have seen one on

the lake in the park. Many of the children in Venice have never seen a horse.

In every city in our country there are many people who own horses and carriages. In Venice very few families own their own gondolas, and so they must call one every time it is needed, as we would call a cab.

Near every large hotel there are stands or places where gondolas gather when not in use. Such a place is called a *traghetto*. Here there are posts to which gondolas are fastened, much as horses are tied to posts in our cities. Let us walk from the steps of our hotel to the nearest *traghetto* and engage a boat. We find that one of the boatmen is foreman of the company, and he does not care to have one of their number engaged unless it is his turn to be employed. If, however, you are determined to have a certain boatman, the foreman will consent to your engaging him. No other boatmen in the city are expected to come to this *traghetto* for employment.

The boatmen are called *gondoliers*. They commonly wear white duck suits and white

shoes. The blouse has a wide blue ribbon at the neck. About the gondolier's waist is a bright sash, and on his head he wears a wide straw hat to which ribbons are attached. Sometimes the gondolier is bareheaded and wears a handkerchief about his neck. There are other kinds of suits worn, especially in the winter, when the boatmen are likely to dress in dark-colored suits.

We select a gondolier and ask him the fare. He replies that he will take us wherever we wish to go for twenty cents an hour, but that after dark the fare will be twenty-six cents an hour. We step aboard, and seat ourselves in the high-backed seats with their leather cushions. How easily we start! How silently we glide along the canal! No crowding for seats; no names of streets being shouted; no asking for transfers, and no pulling of the bell cord.

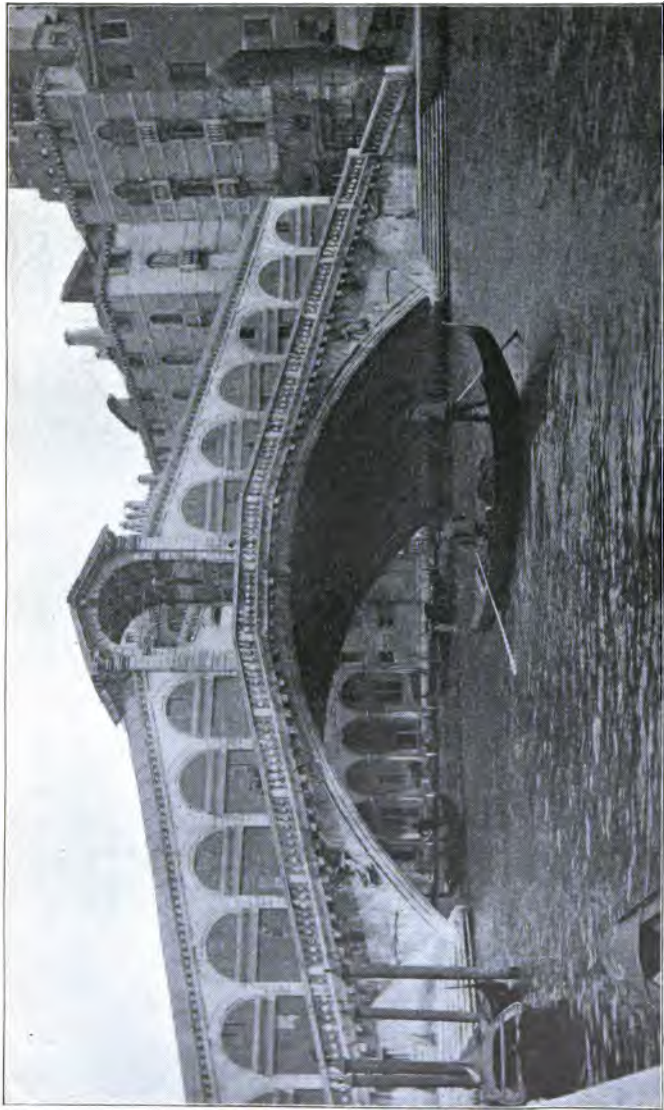
And now let us examine our gondola. It is a long, narrow boat and black in color. Each end is pointed and rises from the water to a height of four or five feet. The front end of the boat is a little like the neck of a violin. In the center

of the gondola there is a small cabin of black cloth. There are two seats with high, carved backs, and there is a strip of carpet on the floor. The gondolier does not sit to row the boat as boatmen do in this country. He stands up in the stern of the boat upon a little platform and handles a long oar, which is in an oarlock. The oar is pushed instead of pulled.

We are journeying along the Grand Canal, or *Canalazzo* as the Italians call it. This is the chief canal or street in the city, and it winds through it like an S turned backward.

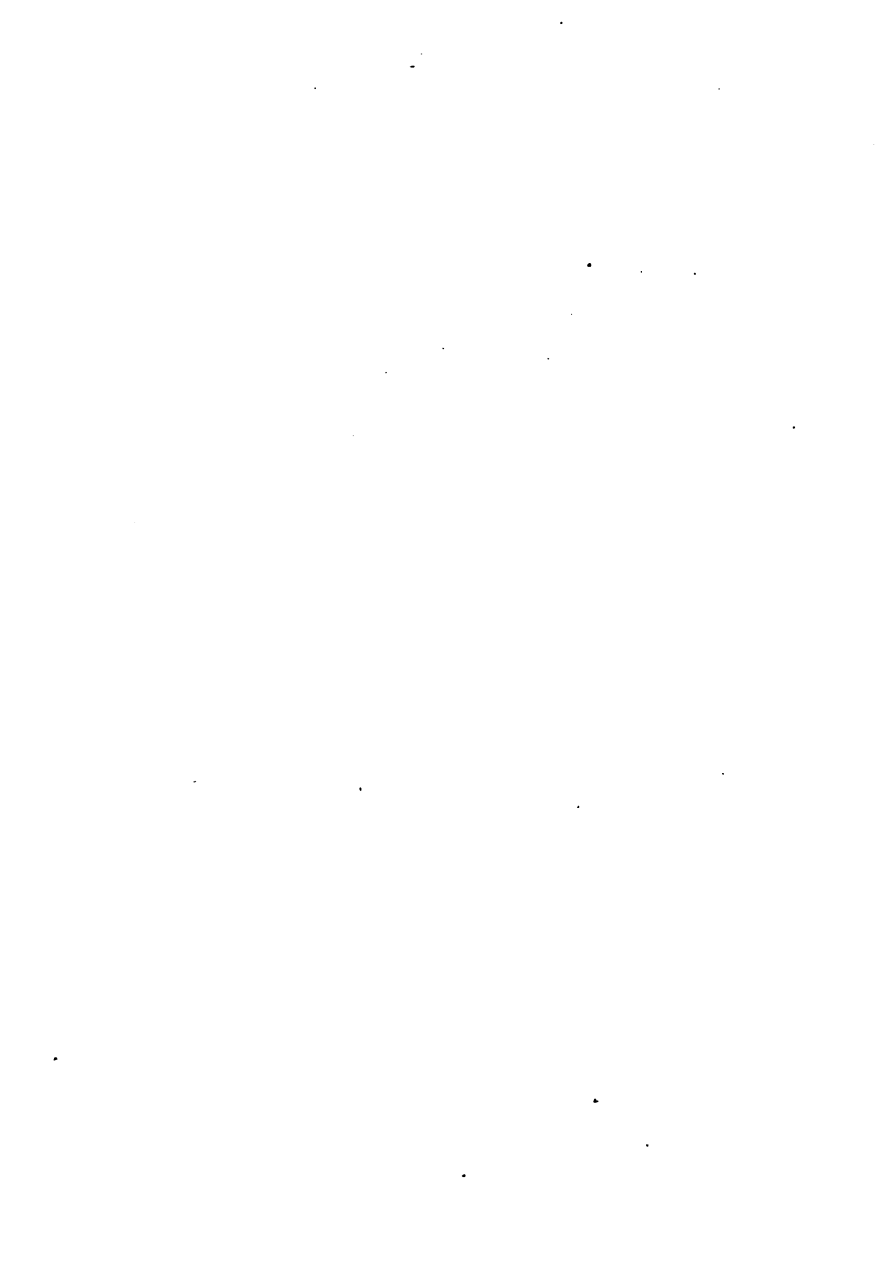
Lū-ĩ'gĩ, our gondolier, shows great skill in guiding our boat, for there are many gondolas on the canal and an occasional steam launch. There are also mail boats instead of mail wagons, and boats piled high with fruits and vegetables. And now we observe that all of the gondolas are black. Luigi says that this has been required by law for several centuries. Each boat has its special number, just as cabs have in our cities.

Here is a sign which reads, "Divieta di Nuota." This means that swimming is forbid-



Grand Canal and Rialto, Venice.

Photo by E. A. Megie.



den, but in many of the back streets the boys swim as much as they wish. There is a mother standing on her steps holding one end of a cord. And look! the other end is tied to a black-haired, black-eyed, dark-skinned boy not more than six years old. He is learning to swim. What fun he is having!

We pass under many bridges as we glide along. There are about four hundred of them in the city. By means of these the people can pass from one street to another. Narrow lanes called *Calli* lead through many houses. The *Rialto*, the most beautiful of the bridges, was built more than two hundred years ago. It is in one span ninety-one feet long. It is as wide as an ordinary street, and is more than twenty feet above the water. Along the bridge there are two rows of shops where various things can be bought. Between these shops is a walk for passengers, and outside of each row of shops there is another walk.

Now we have reached St. Mark's Cathedral. The great square in front of the building is the home of thousands of pigeons. They are so

tame that they light on our hands and shoulders when we scatter food for them.

We look at our watches and discover that it is six o'clock, or, as the Italians would say, eighteen o'clock. They number the hours from one to twenty-four, which seems very strange to us. The gondolier turns his boat about and we start homeward, taking our way along some of the smaller canals. As we approach the *traghetto* at the hotel an old man comes forward, and as our boat touches the landing he holds it firmly by a short hook while we step out. We give him a few cents, for which he seems very grateful. These men are called *hookers*.

After dinner we go for another ride on the canals of this wonderful city. The moon is full and it bathes the buildings, the boats, and the canals in a flood of silver light. The path over which our gondola has glided shimmers far behind us. The whole city seems like fairyland. Lights shine from the houses which rise directly from the water. Lanterns flash from the boats as they glide now this way and now that. As

we look into the water, all of these lights dance and twinkle there also.

Here comes a barge carrying twenty-five or thirty people. They are all singing or playing musical instruments. Luigi says that these young people work during the day and sing during the evening, so as to earn something in addition to their regular wages.

Many gondolas gather about as the music floats away on the air. We drift along, now in the bright moonlight, and now close to some tall house whose shadow makes the water look black and deep. And here, reclining upon our leather cushions, with the music coming to us from the barge, and from many open windows in the homes, and with the stars twinkling in the blue above and in the water below, we fall asleep, to dream of Venice, the city by the sea.

TRAVELING THROUGH THE AIR

WHO has not envied the birds as he has watched them sailing lazily about far above the surface of the earth, or winging a rapid flight from place to place? How easily they seem to move. What glorious views we might obtain could we but rise above the earth as they do.

Man is not content with being able to travel over land and sea. For a long time he has tried to learn to travel through the air. By means of balloons and air ships this is now possible, but travel in them is both expensive and dangerous.

One summer day, in the year 1783, two young Frenchmen in Paris made a small balloon. This was filled with hot air from some bits of wood burning on a tin plate beneath it. As the air filled the balloon it rose and floated, for the colder air was heavier than the warmer air and

lifted it up. When the air in the balloon cooled, the balloon fell.

The floating of the balloon suggested that it might be made to carry something. One day the inventors attached a basket to a larger balloon and sent a chicken, a duck, and a sheep into the air. The animals reached the earth in safety after their strange ride, and they were probably the first living things to take a trip in a balloon. Later in the same year two men ventured to take a ride in a balloon. They sailed over a part of the great city of Paris and landed safely after having been in the air for about twenty minutes.

Since that time many balloons have been made and used, and some long journeys have been made. The balloons that carry men into the air are a little like the toy balloons that you have seen. They are, of course, very much larger and stronger. Sometimes the bag is made of stout cotton cloth covered with rubber, and sometimes it is made of silk which is varnished. Attached to the bag is a basket generally called a *car*. In the car the passengers, from one to three

in number, ride. The bag is filled with a gas which is lighter than the air, and this causes the balloon to float.

When a balloon is filled with gas it tugs at the ropes which hold it to the earth as though it were anxious to be free. It darts upward when it is liberated, and quickly carries its passengers far above the surface of the earth. If the balloonist wishes to descend, he opens a valve and allows some of the gas to escape. Throwing out bags of sand (called *ballast*), or any other weight, causes the balloon to rise.

Carriages, automobiles, and even ships can be guided, but ordinary balloons cannot be. They are simply drifted by the wind. This is a great disadvantage, as travelers have to wait for a favorable wind.

In 1836 three men made a night trip from London to central Germany. What body of water did they cross? In October, 1900, two balloonists made a journey from Vincennes, France, far into Russia. They were traveling in the air for thirty-six hours, and it took longer than this to make the return journey by rail, so

you see they traveled rapidly. A few years ago a man named Andrée set out in a balloon to reach the north pole. He met with some disaster, for he never returned.



An Advanced Type of Airship in which the Framework has been Simplified

From *The World's Work*, by Courtesy of Messrs. Doubleday, Page and Company.

For several years men have been trying to make machines that could be guided through the air. Many air ships and flying machines have been made, but none have been a perfect success. The air ships have powerful motors to drive them, much as automobiles are driven by motors.

Santos-Dumont, a Brazilian, succeeded in sailing around the famous Eiffel Tower in such a machine, guiding it as he wished. In our own country two brothers by the name of Wright have made several trips in an air ship run by a gasoline engine. In Europe an air ship more than four hundred feet in length was made a few years ago. It carried two thirty-five horsepower engines, and could lift a weight of three tons besides itself.

On October 21, 1907, there was an international contest among balloonists. The United States, England, France, and Germany took part. The balloons started from St. Louis and were carried in a general easterly direction by the prevailing winds. Ohio, Delaware, Maryland, Virginia, and New Jersey are states in

which balloons landed. A German balloon, which landed in Asbury Park, New Jersey, about nine hundred miles from the starting point, won the race.

Sometime we may be able to travel through the air rapidly and in safety, but at present we must be content to travel on land or sea, and let the inventors ride in the balloons and air ships.

HOW THE MAIL IS DELIVERED

“THERE is the postman’s whistle,” said Mrs. Cameron. Edith hurried to the door, for a letter was expected from Uncle Charles, who was in Alaska. Soon she scampered back into the room, waving an envelope in her hand. “Is it from Uncle Charles?” she asked, as she handed the letter to her mother.

“Yes,” replied Mrs. Cameron as she tore it open, “it is from your uncle.”

Grandpa, Mr. Cameron, and Edith prepared to listen, for receiving a letter from Uncle Charles was always a very interesting event. The letter was as follows:—

FORT YUKON, ALASKA, July 4, 1907.

MY DEAR SISTER: Even in far-off Alaska this is a holiday, although it is not such a day as you are having in Boston. This morning some of the men fired off revolvers and rifles,

but as there are few children in the camp, we have no fireworks.

Fort Yukon is on the Yukon River, about six hundred fifty miles from its mouth, and almost exactly on the Arctic Circle. The fort was established by an agent of the Hudson Bay Company one hundred sixty years ago, but it is still a small place.

Although we lack many things, we have *one* thing that Boston people do not have, — sunshine night and day; that is, at this time of the year. It would seem very strange to you to see the sun shining at midnight, but this can be done here on June 21. During the winter we see the sun but a short time each day.

Vegetation grows rapidly during the summer days, but the winter weather is bitterly cold. During December the average temperature is about twenty-five degrees below zero. At a depth of a few feet the ground is frozen all of the year.

This letter will leave here to-morrow morning on a little steamboat and go down the Yukon to its mouth, and from there to St. Michael, where

the mail will be transferred to a larger ship. That ship will carry it to Seattle, and the eastern mail will then be carried across the continent by rail.

About the middle of October the river will freeze and remain frozen until about the first of May. Probably you will not hear from me more



than once or twice during that time, for our winter mail trains are drawn by dogs. A team often consists of six or seven dogs hitched tandem. They come in from Valdez, far to the south. The trail follows the ice-covered rivers and lakes and crosses high mountains. There is always great excitement when the mail reaches Fort Yukon. Our nearest telegraph station is at Rampart, more than one hundred fifty miles

southwest, so you see we are shut off from the rest of the world.

I must tell you how the mail is delivered between Kotzebue and Point Barrow. Kotzebue is west of this place, on the coast, and Point Barrow is on the Arctic coast. A Mr. S. R. Spriggs has a contract with the United States



government to carry the mail. This he does during the winter by means of reindeer. The route is about two hundred fifty miles long.

I expect to receive a letter from you by the next boat that comes in. Tell Edith that I am looking for a letter from her, also. With much love I am,

Your brother,

CHARLES.

“I hope that you will never go to Alaska, papa,” said Edith, when her mother had finished reading the letter.

“Why?” asked Mr. Cameron.

“Because we should have to wait so long for letters from you,” returned the little girl. “I don’t see how people can get along without having mail *once* a day at least. The postman comes here *three* times a day, you know. Uncle wrote his letter on July 4, and this is August 2.”

“There are many persons who do not see a postman every day,” said grandpa. “I read in my paper a few days ago of a great sailing vessel, the *R. C. Rickmers*, that arrived in San Pedro, California, on the 23d of last month. It came from Hamburg, Germany, and carried 39,800 barrels of cement. The trip required 105 days, and of course, during all that time the sailors received no letters. Perhaps some of the men found mail awaiting them in San Pedro, for there was time for letters written weeks after the vessel left Germany to cross the Atlantic in a liner, cross our continent on a train, and reach California before the ship sailed into port.

“Perhaps,” continued grandpa, taking Edith upon his lap, “I can tell you a story about the delivery of mail.”

“Oh, please do!” said Edith.

“The custom of sending messages from person to person has been followed for thousands of years,” began grandpa. “We read in the Bible of a letter which King David wrote from the city of Jerusalem to one of his generals named Joab. This letter was placed in the hands of a messenger who carried it to the general. There were no trains in those days and so all letters were delivered by men on foot, men on horseback, or by carrier pigeons.”

“By carrier pigeons!” cried Edith. “How could a pigeon carry a message?”

“The birds were trained when quite young,” replied her grandpa. “They were taken a short distance from home and then set free. The pigeons would of course fly home. The next time they were taken a greater distance. This training was repeated many times, the distance always being increased. A man going on a long journey would sometimes take several pigeons

with him. When he wished to send a message home it was fastened to one of the birds, which was then set free. Full-grown carrier or homing pigeons, as they are sometimes called, can fly more rapidly than a train runs. Such pigeons are occasionally used now, not because we need them, but because their use is very interesting.

“In those early days letters and even books were often written upon tablets of clay. The skins of animals, the bark of certain trees, and the thin tissues from the stalks of the papyrus plant, which grows in Egypt, were found much more convenient, however.

“In time the carrying of messages, which was established for the use of kings and others of high rank, came to be employed by the common people. You have often heard the expression ‘post haste.’ Years ago people in England used to write across the face of their letters, ‘haste, haste, post haste.’

“During early colonial days the colonists were very anxious to hear from home, and home in most cases meant England. When a ship from the mother country landed on our shores there

were always people waiting to see if it brought them news from the loved ones left behind. The captain of the vessel took to the nearest coffee-house the letters not called for at the wharf and there they were obtained by their owners.

“As the country was settled men were engaged to carry the mail between the different towns and cities. Usually the postmen did not start out until they had letters enough to pay the expenses of the trip. They would carry packages and even lead horses from town to town in order to earn a little money. It is said that one Pennsylvania postman knit mittens and stockings as he jogged along.

“The first regular mail service between Boston and New York was established on January 1, 1673. The round trip in the winter required about a month.

“As late as 1704 there was no regular post office west of Philadelphia. On July 26, 1775, the colonists appointed Benjamin Franklin as Postmaster General, paying him a salary of \$1000 a year.

“Here,” continued grandpa, “is a letter that I received yesterday from Lynn, only a few miles away; you see that there is a two-cent stamp upon it. Please bring me Uncle Charles’s letter.” Edith ran to the table and returned with the letter. “You see,” said grandpa, “that this letter also bears a two-cent stamp, although it was carried several thousand miles. Did you ever see letters that came from a foreign country?”

“Oh, yes,” answered Edith; “they have five-cent stamps on them.”

“In 1792,” continued grandpa, “the Congress of the United States fixed the rate of postage in this country. In some cases it cost ten cents to send a letter only a short distance. The cost depended upon how thickly settled the country was, as well as upon the nature of the roads.

“Although people paid for having their letters delivered in the days of our early history, there were no postage stamps in use. The charges were generally paid by the person who received the letter. The amount due was stamped on the outside.

“In August, 1834, James Chalmers, at Dundee, Scotland, made the first adhesive stamps.”

“What are adhesive stamps?” asked Edith.

“They are stamps that are made to adhere or stick to the envelopes by moistening them,” her grandpa replied.

“In 1847 the United States government commenced issuing postage stamps. Before this time some of the postmasters were allowed to make stamps, but this is not permitted to-day. At first only five and ten cent stamps were made by the government. The five-cent stamps bore the head of Franklin, while that of Washington appeared upon the ten-cent stamps. In 1885 special delivery stamps were issued. These cost ten cents each; but when such a stamp is placed upon a letter, it is delivered by a special messenger.

“Another interesting thing about letters written many years ago is, that they were not placed in envelopes.”

“Why not?” asked Edith, in great surprise.

“Because,” continued grandpa, “there were no envelopes. When a letter was finished it

was folded into the form of an envelope and fastened by means of sealing wax."

Lifting Edith from his lap, grandpa went into his room and returned in a moment, carrying a little box. Opening it he took from it two faded letters. Here is a picture of one of



A Picture of an Old Letter.

them. You see that it cost ten cents to send it.

"This letter," said grandpa, "was written in Baton Rouge, Louisiana, on October 1, 1847. That is sixty years ago. At that time I was a young man living near Geneva, New York State. This second letter was written by the

same dear friend on June 20, 1853. It, you see, bears two three-cent stamps.

“To-day a letter can be sent from Boston to San Francisco in four days, but before the year 1860 twenty-one days were required to send one from Independence, Iowa, to California, a distance of nineteen hundred fifty miles, for there were no railroads in the far West. Realizing the great need of a better mail service, some wealthy men established the *Pony Express*.

“Two hundred stations were built between these points, and at these five hundred swift, strong ponies were kept. Eighty riders were employed to carry the mail. Each rider rode from seventy to one hundred miles with no stops except to change ponies. At noon on April 3, 1860, the start was made from each end of the line. The first trip was made in ten days. Later it took eight or nine days. President Lincoln’s first inaugural address was carried in seven days and seventeen hours. For some time the postage was \$5 for a half ounce, but later it was reduced to \$1.

“Many were the dangers which these brave mail carriers endured, for there were in those days many Indians and outlaws. The rider made no stop to eat or sleep until the end of his journey was reached. The longest ride was made by William Cody, now called ‘Buffalo Bill,’ who was then but fifteen years of age. The boy rode steadily for nearly thirty-six hours, covering a distance of three hundred eighty miles. During all of that long ride he stopped for only one meal.

“The Pony Express was kept up for less than two years, for on October 22, 1861, a telegraph line connecting the East with the West was finished, making it easy to send messages across the continent by wire.

“The postal service has grown and improved wonderfully in our country. At first the mail was carried by men on horseback, then by coaches, and now by trains. Parts of the country into which railroads are not built have their mail delivered in the old way. Formerly people went to the nearest post office for their mail, now in all cities the mail is delivered by post-

men, just as the letter from Uncle Charles was delivered to-day.

“In many parts of the country there is a rural free delivery. By the roadside in front of



Photo by T. P. Lukens.

A Stage in Yosemite Valley, California.

each farmer's house is a mail box, having the name of the owner upon it. A letter carrier drives through the neighborhood with the mail. When he leaves mail in a box he raises a little signal which is attached to it in such a way

that it can be seen from the farmhouse. This, you see, takes the place of a whistle.

“To-day some trains are given up entirely to carrying mail, and all passenger trains that cross the continent carry tons of mail. Not only is the mail carried on trains, but it can be posted on them as well. It is also sorted on the mail cars, and sacks of mail are thrown off and others taken on while the train is going at full speed.”

“I don’t see how mail can be put on a train when it is in motion,” said Edith.

“Beside the track, at the places where mail is to be exchanged, there are upright posts of wood or iron,” said grandpa. “Attached to each upright there are two cross arms as far apart as a mail sack is long. By means of hooks a sack is suspended between these arms.

“Beside the door of each mail car there is a sort of arm, or hook of iron. Just before the mail car reaches the spot where a mail bag is hanging, the postmaster within the car raises this arm which, as the train rushes by, pulls the sack from the hooks and holds it. It is then

taken by the postmaster, opened, and its contents sorted. At the same time that the sack is taken on board another is thrown from the door of the car. The first of these traveling post offices was run between Chicago and Clinton, Iowa, about 1864.

“In 1790 there were but seventy post offices in the United States. In 1900 the number had increased to 76,688, while on June 30, 1906, there were but 65,600. The decrease is due to the large number of rural free-delivery routes that have been established.

“This wonderful postal system makes it possible for us to send letters to any part of the civilized world. If properly addressed and stamped, they are almost certain to reach their destination safely and promptly, just as Uncle Charles’s letter came all the way from the Arctic Circle to our door for only two cents.”

WONDERFUL WIRES

ON the morning of July 30, 1907, a gentleman in Idaho wished to communicate with me. Not wanting to wait for a letter to be delivered, he stepped into a telegraph office and wrote a message upon a sheet of yellow paper. This he handed to the man in charge, who seated himself at a table upon which there were some small instruments noisily clicking. Rapidly working the key of one of these instruments, the operator gave the message to the wires and instantly it was flashed southward. This was at half-past ten o'clock, and at eleven o'clock a messenger boy handed me the dispatch at my home eight hundred miles from its starting point.

Fifty years ago the quickest way of delivering a message between these two points was by a special carrier on horseback. The trip would have been long, full of hardships and dangers, and costly. To-day telegraph lines connect all

of our cities and towns, and they extend over lofty mountains and across dreary deserts.

The wonderful invention which makes possible the sending of messages over these wires was not the work of a single individual. Many men, both in Europe and America, worked at the problem, but the credit is chiefly due to Professor Samuel Morse. Professor Morse was the son of the Rev. Jedidiah Morse, who wrote the first geography ever published in America. After graduating from Yale College young Morse went to England and studied painting for several years. You remember that Robert Fulton, another great American inventor, also studied painting in Europe.

Mr. Morse was forty-one years old when he gave up his art work and began to devote his life to the study of electricity. In 1837 he exhibited his telegraphic apparatus before the President of the United States and his cabinet, and in 1840 he obtained a patent on it. Inventing and patenting the apparatus was only a part of the work, however. It takes money to put a great invention into use, and Mr. Morse was

poor. He asked the government to aid him in carrying out his work, but for some time no help was given.

On the morning of the fourth day of March, 1843, Mr. Morse was told that Congress had appropriated the sum of \$30,000 to enable him to establish a telegraph line between Baltimore and Washington, a distance of forty miles. The news seemed almost too good to be true. It came after eleven years of patient toil, many disappointments, and hardships. The first message sent over the line was dictated by a Miss Ellsworth, who had brought the joyful news to Professor Morse. It was as follows: "What hath God wrought!" This was on May 24, 1844.

Soon after the opening of the line, the National Democratic Convention, which was in session in Baltimore, nominated James K. Polk for President and Silas Wright for Vice-President. Mr. Vail, the assistant of Mr. Morse, at once telegraphed the news of the nominations to his superior officer in Washington. Within a very short time the convention received a message

from Mr. Wright declining the nomination. The members thought that a trick was being played upon them and sent a committee to Washington to talk to Mr. Wright. When the committee reported, people knew that the wonderful wires had told the truth.

Through the members of this convention the news of the success of the telegraph was carried to all parts of the country. Soon other lines were built not only in our own country but in Europe as well. Other men came forward with similar inventions, and Professor Morse had many trials in contending for his rights, but he was finally successful. Honors were conferred upon him by many countries, and in 1858 representatives from several European nations, meeting in Paris, sent him a present of about \$80,000 as a token of their regard.

Before operators can send or receive messages, they must understand the alphabet used in telegraphy. This alphabet was invented by Mr. Morse. It consists of dots, dashes, and spaces. The letters used most frequently have the most simple symbols. The letter "e" is represented

by a dot, and “t” by a dash. New York is written in this way:—

N e w Y o r k

As the instrument produces the sounds which correspond to these dots and dashes, the operators write the messages which are being sent.

In constructing a telegraph line a large number of poles is needed. These are obtained by cutting trees in the forest, trimming off the limbs, and peeling off the bark. The lines that follow the railroads across the open country have about thirty-five poles to the mile. Near the tops of the poles cross arms are fastened. Wooden pins are set into the upper edge of each cross arm and glass caps are screwed to the wooden pins. As the wires are strung from pole to pole they are fastened to the glass caps, or *insulators* as they are called. The insulators will not conduct or carry an electric current, and they therefore prevent it from leaving the wire at each pole.

The telegraph is of the greatest importance.

All kinds of messages are sent over the wires. Most of the news printed in the papers comes to the newspaper offices by means of the telegraph. Merchants and speculators use the wires constantly so that they may be posted on the markets. Trains could not be run as they are to-day without the use of the telegraph. By means of the wonderful wires, farmers, fruit growers, sailors, and all who are interested may know thirty-six hours in advance what kind of weather to expect. Within an hour after the weather bureau officials feel certain that a severe storm is approaching, every sailing-master on our coast, as well as along our lake shores, has been warned. Because of this, many lives and much property are saved each year. During a single cold wave in 1898 \$3,400,000 worth of fruit was saved by sending to fruit growers telegraphic warning of frost.

At eight o'clock, both morning and evening, by Washington time, weather conditions are observed at 200 stations in various parts of our country and telegraphed to the great central stations. While these reports are being sent the wires cannot be used for any other purpose.

On July 1, 1903, there were in the United States 2,015 places where the daily forecasts of the weather were received by wire. In the year 1902 there were over 1,000,000 miles of telegraph in our country and 27,627 persons were employed by telegraph companies. Now that long-distance telephones are so common, many messages are sent by telephone that would otherwise be sent by telegraph.

Wonderful as it is to have messages carried across the country on wires, it is now possible to telegraph without wires. Wireless telegraphy has been employed but a few years and is not yet in common use. Its success is chiefly due to the work of a young Italian named Marconi. Some of the large ocean liners now carry wireless outfits which makes it possible for them to communicate with distant points on shore as well as with other vessels.

A few months ago a wireless operator at Mare Island, California, caught a message sent from Nome City, Alaska, more than 2,000 miles away. On October 10, 1907, a wireless message was received at Newport, Rhode Island, from the

great ship *Lusitania*, which was at the time far out at sea.

When next you look at a telegraph line extending along a city street or across the country, you may perhaps wonder what messages the wonderful wires are carrying. Swiftly, silently, and constantly messages are flashing over them from all parts of the country. We can send business information or personal greetings to our friends in the next town or on the opposite coast. Surely no work of giant, fairy, or brownie could be more wonderful than this.

Let us not forget that the men who made this possible have done as much for the world and are entitled to as much praise as our great soldiers. One does not need to be a soldier, nor to hold high office, nor to be wealthy in order to be great.

THE TELEPHONE

IF fifty years ago people had been told that it would some day be possible to sit in one's home or office and converse with a person miles away, the story would not have been believed. To-day, carrying on a conversation by means of the telephone is so common that we hardly give it a thought. You remember that in telegraphing there are sounds which stand for letters. It seems wonderful to send messages in that way, but it seems still more wonderful to be able to hear and recognize the voice of a friend, although that friend may be a hundred miles away.

The word "telephone" was made by using two Greek words, one of which means *far* and the other *sound*. Telephoning, then, means sending the sound of the human voice to distant points.

Mr. Alexander Graham Bell was the first man to send speech over a wire. He applied for a

patent on his invention on the fourteenth day of February, 1876. Another inventor, Elisha Gray, applied for a patent on a similar invention on the very same day.

In August, 1876, Mr. Bell telephoned a distance of five miles. On the evening of October 9, of the same year, he telephoned from Boston to Salem, Massachusetts, about fifteen miles.

At first telephone messages were sent over telegraph wires, but on the fourth day of April, 1877, the first real telephone line was built. This extended from Boston to the near-by town of Somerville.

The telephone was exhibited at the Centennial Exposition in Philadelphia in 1876, and people from all parts of our country learned of the wonderful invention. It was rapidly introduced; at first for the use of business men, and later in dwellings and in the country, as well as in the city.

For some time no long telephone lines were built. On May 7, 1877, the following circular letter was sent out by the telephone company:—

“The proprietors of the telephone, the inven-

tion of Alexander Graham Bell, for which patents have been issued by the United States and Great Britain, are now prepared to furnish telephones for the transmission of articulate speech through instruments not more than twenty miles apart. Conversation can easily be carried on after slight practice and with the occasional repetition of a word or sentence.

“The telephone should be set in a quiet place, where there is no noise which would interrupt ordinary conversation.

“The terms for leasing the telephone for social purposes, connecting a dwelling house with any other building, will be \$20 a year; for business purposes, \$40 a year.”

It was soon discovered that longer lines could be operated. In 1884 New York and Boston were connected, and in February, 1903, Chicago and Boston were united by telephone.

There are now about five million miles of telephone wires in use, and there are more than two million subscribers. Lines have been built in all parts of our country, and they are found in nearly all parts of the world.

If you could follow the telephone wire from your home, you would find that it ends in a building of the telephone company. Here all of



Switchboard in a Central Telephone Office

By Courtesy of the New York Telephone Company.

the wires running to the homes and offices in the town or city terminate. In this building there are a number of "operators." These are nearly

always girls. The operators sit before a switchboard on which there are many numbers, corresponding to the numbers of the telephones in use. When you step to your telephone and lift the receiver from its hook, a tiny, round electric light is displayed in front of one of the girls in the telephone office. When the operator sees this signal, she pushes a little brass plug connected with a wire into an opening called a "spring jack." Next she connects a receiver, which is strapped to her head, with a transmitter in front of her, and you hear her say, "Number?" When you have told her she finds whether that particular number is in use. If it is, she says, "That line is busy." If the line is not in use, the bell rings in the home or office of the person wanted and we soon hear some one say, "Hello."

Some lines are "party lines," that is, several persons use the same line. Other lines are individual lines. Of course the individual lines are much the more desirable of the two, for on these conversation cannot be interrupted.

Think of the many ways in which we use this wonderful invention, the telephone. We order

groceries, meat, fuel, and other things by means of it. We "call up" our friends just to exchange friendly greetings, and business men transact a great deal of business over the telephone. Many people who have individual lines remain in their own homes and listen to a sermon or a concert. In this way the telephone is a great convenience to old people and to invalids.

A few days ago I boarded a train in Los Angeles. The train was bound for Chicago and was fitted with all of the latest improvements. Presently a gentleman who had probably hurried to catch the train entered, and stepping to one of the two telephones which the car contained, he telephoned home. Two other men made use of the telephones before the train started. The telephones were connected to wires which extended from the station to the car. When the conductor shouted "all aboard!" the telephones were passed out of the window to a man waiting to receive them.

In the city of Budapest a telephone "newspaper" was started in 1893. The office which furnishes the news is connected by wire with all

of the churches, theaters, and public halls in the city. News items are collected by reporters in the ordinary way. The news of the day is read into a transmitter. Each of the several thousand subscribers has a programme so that he knows just when a certain class of news is to be furnished. He has only to take down his receiver to learn the condition of the markets, the events of the day, or to listen to a sermon. Each subscriber pays a penny a day for the privilege of getting the news in this truly wonderful fashion.

MESSAGES UNDER THE OCEAN

IF you were in England, Japan, Australia, or in almost any other part of the world and wanted to send a message to your home, you would not have to write a letter. Instead, you might go to a telegraph office and send your message by wire. If the station from which your dispatch was sent were not on the coast, the message would flash to some station so situated, and from there it would travel to America over wires laid on the bottom of the ocean.

Look at a map of the world and see what a long, long distance it is from New York, Boston, or from your home to Manila in the Philippine Islands, and yet you could send a message to some friend in Manila which would reach him almost instantly. Is not this wonderful?

It is not very long since ocean cables first came into use. In 1839 a gentleman in far-off

India thought that messages might be sent under water. He laid a copper wire wound with cotton thread, and covered with pitch and tar, under the Hooghly River. By means of this wire, signals were sent across the stream.

Three years later Mr. Morse, of whom you have been reading, laid a wire between Castle Garden and Governor's Island, New York. It was found that signals could be sent through this also, but it was soon torn up by the anchors of ships. In 1849 a cable was laid between New York and Jersey City. Mr. Morse kept on experimenting and soon came to the conclusion that it would be possible to send messages across the sea.

France and England are separated by the narrow English Channel. Between Calais and Dover it is only about twenty-five miles wide. Between these two points a cable was laid in 1847. It worked successfully for one day and then failed. The next year, however, the cable was operated. This was the first successful ocean cable ever laid.

Finally it was determined to connect Europe

and North America by means of the ocean telegraph. Mr. Morse did not have the money with which to carry out this great undertaking, and the success of the enterprise was in large measure due to Cyrus W. Field. Mr. Field was at that time a young merchant in New York City. He had great faith in Mr. Morse and the cable, and was not discouraged by the first failures. A cable was constructed, and in the year 1857 the work of laying it commenced. It is a long, long distance across the Atlantic Ocean, and the water is very deep. It was decided to connect Ireland and Newfoundland. Look at the map and see if you can tell why.

The cable was placed on board a vessel and reeled out as the ship sailed forward. How anxiously all those on board watched the wire as it disappeared beneath the waters of the ocean! When about three hundred thirty-eight miles had been paid out, the cable broke.

What was to be done? Far below on the ocean floor lay the wire, and there was no means of getting it up. The people who believed in the success of the undertaking were

very much disappointed, but they did not give up. Another cable was made, and the next year, after several mishaps, it was laid. On August 13, 1858, this message was sent over the wire: "Europe and America are united by telegraph. Glory to God in the highest; on earth peace and good will to men." It took thirty-five minutes to send the message. To-day about eighty or ninety words per minute can be sent across the Atlantic.

The people of England and America were delighted and there was great enthusiasm shown. Just four hundred messages had been sent when, to the surprise and disappointment of all, on the first of September the cable refused to work.

For a long time it seemed as though nothing could be done. Many lost faith in the cable, and the Civil War made it difficult to get people interested in the work. However, there were a few men who would not give up. Another cable was made, and in 1865 the *Great Eastern* sailed from Valencia, Ireland, with it. After some mishaps the cable was laid and operated.



Its success gave the public faith in the work, and other cables were laid between Europe and America. There are now about fifteen between these two continents. As the chart shows you, the various continents and many islands are now connected by cable.

The map shows that the Pacific is very much wider than the Atlantic Ocean. It is only recently that a cable has been laid across this grand expanse of water. On October 31, 1902, a cable between British Columbia, Canada, and Australia was completed. Note the islands connected. There is now a cable connecting San Francisco and Manila. Its length is more than seven thousand miles. Name the islands which it connects.

Cables are made of fine copper wires twisted together. These wires are covered with gutta percha. Next comes a layer of jute or hemp. Outside of this are iron wires twisted spirally, each wire being covered with strands of hemp.

It is very expensive to lay an ocean cable, and it costs a great deal to keep one in repair. When a cable is to be laid coils of wire contain-

ing several hundred miles each are taken on board a ship. As the vessel goes forward the cable is reeled out from the stern at the rate of four to eight miles per hour.

After the cable has been safely laid the anchors of ships or floating icebergs may break it. A break is located by sending a message from each end of the line and estimating the distance which each travels. Knowing the total length of the cable, the captain of the repair ship can go almost exactly to the spot where the break occurred. Hooks are lowered to the bottom of the ocean, and by means of these the ends of the cable are drawn on board and the break mended.

A cable lasts from thirty to forty years unless it meets with a mishap. The weight of deep-water cables is from one to one and one half tons per mile, while the part near shore sometimes weighs fifteen tons to the mile.

There are now about 1750 cable lines in the world. Their combined length is about 200,000 miles. Over these lines 6,000,000 messages are sent per year. It requires only two or three

minutes to send quite a long message across the Atlantic.

In early days the cost of sending a message across the Atlantic was five dollars per word, while to-day it is about twenty-five cents.

Business houses have what is called a *code*. By this arrangement a single word may stand for a large number of words. This makes it possible to cable considerable information at slight cost and in a very short time.

You have only to pick up the daily paper to see that we have news of events that took place in all parts of the world but a few hours before the paper was printed. Before the laying of the first Atlantic cable, news from England was brought to this country by ship and was more than a week old when it reached America. You see how important the cable is to us even although we may never send a cablegram.

